

W. S. TAYLOR

Dynamic
and
Abnormal
Psychology

American Psychology Series

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Dynamic and Abnormal Psychology W. S. Taylor

W. S. TAYLOR
Smith College

Dynamic and Abnormal Psychology

Bureau Ednl. Res. Research

DAVID H. SMITH COLLEGE

Dated..... 15.3.56.....

Accs. No..... 984.....

New York AMERICAN BOOK COMPANY

X100 6581
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To my Students in
Abnormal Psychology

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Taylor: *Dynamic and Abnormal Psychology*

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Preface

This book brings together many of the most important contributions to dynamic and abnormal psychology and organizes them within a framework of concepts of general psychology, developing the concepts according to the data. The book is designed as a text for courses in abnormal psychology; as a supplementary and reference work for courses in personality, educational psychology, social psychology, and related fields, and for advanced workers; and as a survey for independent readers.

"Dynamic" I take to refer to motivation; and "abnormal," to include all failures of integration—everyday conflicts, confusions, upsets, sleepiness, dreams, abnormal suggestibilities, "unaccountable" prejudices, and undue preoccupations, as well as the psychoneuroses, or minor mental disorders, and the psychoses and other major mental disorders. Of all these failures of integration, I consider especially the everyday mental abnormalities and the psychoneuroses. Thus psychopathology, the study of mental disorders, is a specialty to be drawn upon and largely included in abnormal psychology. "Dynamic and abnormal" covers much essential psychology which, together with other approaches, is basic to psychopathology, personality, education, sociology, and other fields.

Technical terms, many of which are used variously in the literature, I try to define according to the best usage; and I introduce new terms and definitions only where they seem needed. Many of the technical terms and their meanings are brought together for comparison in the Introduction to Terms which precedes the Index and Glossary; and practically all the terms are included in the Index and Glossary.

Further materials, clinical, experimental, semantic, and theoretical, are suggested through the footnotes, the Further References at the ends of chapters, and the publications cited. Additional references to the older literature are available in James Mark Baldwin's Dictionary and the Psychological Bulletin, and to the literature since about 1924, in the Psychological Abstracts.

The book derives from many sources.

The first debt is to teachers like Charles F. Sanders, R. F. A. Hoernlé, William Ernest Hocking, Ralph Barton Perry, Edwin B. Holt, Leonard Thompson Troland, William McDougall, Herbert Sydney Langfeld, and Floyd Henry Allport; a physician and roving student, Robert P. Parsons, who made me his assistant in a study of military desertion; Morton Prince, who talked and corresponded with me about cases, dynamic and abnormal psychology, psychotherapy, and the manuscript of my study of his contributions; and at various institutions and professional groups, associates like Wesley R. Wells, Ralph Linton, Philip Dudley Woodbridge, Arthur F. Scott, Robert R. White, Sarah Cornwell White, Harold G. Wolff, E. H. Ehrenclou, Ethel Sabin-Smith, Lydiard H. Horton, Tom A. Williams, Herman H. Young, Mary Hoover Young, Harriet E. O'Shea, Clark L. Hull, Joseph Jastrow, Elmer Culler, H. M. Halverson, Gordon W. Allport, Milton H. Erickson, Richard M. Elliott, several psychiatrists at the Northampton State Hospital and the Veterans Hospital, and a number of colleagues at Smith and the neighboring colleges. All of these persons, through their interest, furthered mine in the dynamic and abnormal field.

Austin B. Wood wrote the portion on Freud, Jung, and Adler in Chapter 3. I am glad for his direct share in the work.

The definition of psychology that I use was stated by William James in his *Principles of Psychology*.

Acknowledgments to the literature appear throughout the book. Titles of articles are omitted; the titles of some books in later mentions are abbreviated; classic works are referred to by author and title and perhaps section only; for the epigraphs, only the authors are cited, but usually the titles are familiar or can be traced easily; in the text and notes, references merely to authors and dates can be completed through the Psychological Abstracts; abbreviations are explained in the Index and Glossary; and there are many simple references to the Psychological Abstracts by abbreviation, volume, and item (e.g., PA 3 166). Otherwise, in each chapter, the first reference to each publication cited is complete and may be found through the author's name in the Index and Glossary.

The Social Science Research Council provided a grant-in-aid for my study of sublimation, which was published in *Genetic Psychology Monographs*.

For permissions to draw freely upon my articles and monographs, including collaborations with Elmer Culler, F. W. Kaufmann, and

Mabel F. Martin, respectively, I thank The Encyclopaedia of the Social Sciences for material on Pinel; The American Journal of Psychology, on Janet; The Dictionary of American Biography, on Prince; Genetic Psychology Monographs, and The Encyclopaedia Sexualis, on sexual motivation; The Psychological Review, on cults and science, inhibition, and imitation and suggestion; The Journal of Social Psychology, on liberalism and democracy; and The Journal of Abnormal and Social Psychology, on a number of central topics.

For permission to use likewise my books, *Readings in Abnormal Psychology and Mental Hygiene*, 1926, and *Morton Prince and Abnormal Psychology*, 1929, I thank Appleton-Century-Crofts, Inc. (Both books are out of print.)

The persons whose psychological problems are cited in the text without further reference, or persons responsible for those individuals, have permitted me to cite them thus disguised.

Amelia W. Tyler, Margaret L. Johnson, Virginia T. Rogers, and their associates at the Smith College Library, and several staff members at other libraries, gave time and counsel at many points.

The following persons, as research assistants, helped to gather material:

Judith E. Balise, Frances Biddle Bettie, Beatrice L. Booth, Jean Bryant, Sue Carlton, Marcelle G. Churchill, Doris A. Ciaschini, Mary I. Cochran, Joan Phillips Fleischer, Kitty Frazier, David Freedman, Mary Gorey Grant, Anne van Patten Grilk, Mary Elizabeth Harris, Eleanor Elizabeth Hobbie, Marcia Holden, Sarah Jane Holtzberg, Mary Hurley, Mary M. Jackson, Louise Fenger Jones, Barbara Maria Korsch, Elizabeth Kridl, Patricia Horrigan Mackenzie, Mabel F. Martin, Laurice Nassif, Beverley S. Newbern, Margaret R. Perkins, Joy Pickard, Judith W. Politzer, Minnie Radner, Muriel Relman, Priscilla Richards, Betty Rogers, Judith Rogers, Virginia T. Rogers, Barbara Rood, Marjorie W. Sallie, Marianne B. Sommerfeld, Alberta Steinman, Andrée Henzler Uhlig, Cicely Ellsworth Taylor, Gladys White, and Catherine S. Wright.

Lillian Levin, Priscilla Richards, Dorothy S. Miller, and Eleanor Annis typed some, and Harriet F. Tidd, most, of the manuscript.

The manuscript developed through successive drafts, assimilating new materials and taking new shape, primarily as a text for my classes in abnormal psychology. The students' questions, comments, and discussions were very helpful.

Milton H. Erickson read several early parts and gave searching criticisms of them. He also made freely available all his published and

many unpublished materials, as acknowledged throughout the book, and greatly encouraged the whole project.

Other psychiatrists generously read and commented upon portions: Richard Karpé, on Freud and sexual motivation; Charles H. Kimberly, on Riggs; and Adolf Meyer, on his own work.

Philosophers Gail Kennedy, Morris Lazerowitz, and Alice Ambrose Lazerowitz read and commented upon some of the historical and the more philosophical parts.

Psychologists who contributed similarly were John P. Seward and Georgene H. Seward, on motivation; and Magda B. Arnold, Hanna Fay Faterson, Eugenia Hanfmann, Fritz K. Heider, Mabel F. Martin, Margaret M. Riggs, and Bohdan Zawadzki, on several chapters each.

Lay readers of portions were Helen H. Harris, Ella V. Kempton, Grant McColley, Ann Nichol Moore, Richard Ashley Rice, Barbara Rood, Harlan Shaw, and Phoebe Agnes Taylor.

My wife, Phoebe L. S. Taylor, helped with management and numerous details, read the whole manuscript more than once, and contributed much to sense, style, and accuracy.

Henry E. Garrett, as General Editor of American Book Company's American Psychology Series, made valuable suggestions.

Mrs. Politzer, with some help from Miss Annis, Miss Tidd, and me, prepared the Index and Glossary.

Miss Tidd, Mary Pollard Sullivan, and Joanna E. Miller helped with the proofs.

To all these sources and readers I am grateful for their ideas, including those to which I was not converted. For the text itself, however, only Austin Wood can be held responsible for his portion, and I for the rest.

W. S. T.

Northampton, Massachusetts

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Dynamic and Abnormal Psychology

The size and importance of the problems with which we deal should in themselves keep us modest. For what are these problems? The problems of human relationships, of personality, of character, the intricate play of physical, intellectual, and emotional forces within the individual, and the reaction and counter-reaction between this total play and similarly intricate factors without the individual. These problems have ever lain at the center of things and have throughout time defeated wiser men than we. Our only possible claim is that, through their efforts, gradually better tools have been developed with which to work.

Frankwood E. Williams

What the field of dynamic and abnormal psychology can yield depends largely upon how we define and approach it.

Definition of the Field

Psychology is the science of mental life.

In this definition, "mental life" means all conscious and subconscious, but not merely physiological, activities and organizations of activities, including feelings, thoughts, volitions, behavior, the self, personality, and personality adjustments. Viewed more fundamentally, the term "mental life" covers all processes which may involve learning. The term "science" refers to the ordered, growing knowledge of that mental life, and particularly to the spirit and method with which the knowledge is gained. "The science of mental life" thus defines psychology in the broadest sense.

2 Dynamic and Abnormal Psychology

Dynamic psychology is the psychology of motivation.

In other words, dynamic psychology is concerned with the various psychological and related factors which drive, steer, integrate, and sometimes disintegrate the mental life. Dynamic psychology aims to explain mental life causally, to find laws which may be useful in controlling mental life. This does not mean that dynamic psychology is mystical or is limited to any particular "school" of psychology. On the whole, modern psychology assumes natural cause-and-effect and is larger than "schools." Dynamic psychology is a vital part of this larger psychology.

Abnormal psychology is the psychology of those mental states and of those minds which are relatively far from ideal integration.

In this definition, the terms "integration," "ideal," and "relatively far" need to be explained. Apparently we can explain them best, however, after a preliminary survey of the content and a sketch of the history of abnormal psychology. For the present, let us note simply that "integration" means coordinated, rich, unified, stable functioning of the individual as a whole; "ideal integration" is a guiding concept derived from experience and observation; and "relatively far from ideal integration" is a rough measure, but the most useful measure now available.

No one is perfectly integrated. The most normal person approaches perfect integration only when he is fully awake and at his best. Every person loses integration and develops abnormal, though not pathological, states when he becomes conflictful, or confused, or upset, or sleepy, or in any way not fully awake and at his best.

The Material of Abnormal Psychology

If abnormal psychology covers not only those minds but also those mental states which are relatively far from ideal integration, the field includes much more than the pathological. Abnormal psychology includes many mental states of abnormal persons, and also some mental states of all persons.

Classified more formally, we shall say that the material of abnormal psychology comprises (1) *everyday mental abnormalities*, (2) *minor mental disorders*, and (3) *major mental disorders*. This division is somewhat arbitrary, since the boundaries of the groups are not precise, and like phenomena may appear in more than one group; yet the division is convenient.

Everyday mental abnormalities are not mental disorders but mental states of the moment, which everyone knows, and some of which occur in all persons.

Under this heading come conflicts, confusions, upsets, sleepiness (though sleep makes for integration, it is itself an unintegrated state), dreams, abnormal suggestibilities, "unaccountable" prejudices, undue preoccupations, and normally endowed persons' "peculiar" failures to learn.

Everyone recognizes conflicts, confusions, and the other phenomena in this general group, more or less explicitly, as disorders of what we have called integration: the layman observes that a person is "pulled different ways," "at odds with himself," "divided," "torn," "mixed up," "out of sorts," "upset," "broken up," "not together," "scattered," "not running well," "not thinking," "loose-thinking," "tight-thinking," "single-tracked," "narrow-minded," "closed-minded," "a bit twisted," "a little off," "eccentric," "queer," "inconsistent," "cracked," "not all of a piece," "erratic," "with a screw loose," "not working," "out of gear," or "funny." At the same time, no one would label these phenomena "mental disorders" except when they are serious and persistent.

Conflict may occur in a youth who has been brought up to be honest but who finds himself expected to lie to shield his fraternity brothers. Conflict may occur also in a habitually profane young woman who tries to hold a position in a hospital run by nuns. Confusion appeared in an automobile driver who drove past a red light, realized that he had done so and that a policeman had seen him, and thereupon ran into a telegraph pole. Consequently, he was emotionally upset. Abnormal suggestibilities (here always in the broad sense of "abnormal") are evident in hypnosis, in petty involuntary imitations, in surrenders to book agents, and in mob activities. "Unaccountable" (until analyzed) prejudices include dislike of all sailors, distrust of all employers, contempt for all labor organizers, or sentimental idealization of any such group.

Examples of undue preoccupations are the little man's pride in his heavy voice; the tall girl's cultivation of "dolly-dimple" manners; the unpopular girl's fancy that she is of royal descent; the poor man's day-dreams of wealth; the timid youth's passion for firearms; the fanatical reformer's obliviousness to his own faults; the moral failure's self-justifications, such as that he has "an artistic nature"; the shiftless person's blaming his luck; the unsuccessful writer's damning his critics; the opera singer's intolerance of a rival; the spoiled daughter's tyrann-

nical "sensitiveness"; the incompetent or too-ambitious individual's discovery of poor health.

Normally endowed persons' "peculiar" failures to learn because of poor teaching are studied in educational psychology; but failures to learn because of conflict or dissociation or both are studied in abnormal psychology.

A young mother wanted her child to be ahead of every other woman's child. She began toilet training when the child was so young that success was impossible. The child developed enuresis which persisted for years.

Another mother prided herself on her own spelling, and expected her daughter to follow in her footsteps. At the outset the child learned spelling at a normal rate, but the mother expressed great shame and embarrassment over all the mistakes incidental to the learning. Consequently, the daughter felt herself a failure in spelling, and became upset whenever she tried to learn a new word. Soon her spelling fell behind that of her classmates. As an adult, she remained a poor speller, painfully conscious of her limitation.

A father wanted his son to be self-reliant, hard-fisted, able to defend himself. The boy's mother abhorred fighting and urged politeness. The father scolded the boy for "giving in" to his playmates; the mother scolded him for fighting. The boy soon learned to avoid the other boys entirely and became shy, seclusive, and morose.

Minor mental disorders have been observed if not experienced by most people. These disorders occur in various forms and show different symptoms in different cases. Examples of the symptoms are obsessive anxiety and tenseness; certain "nervous hearts" and "digestions"; phobias of all sorts; persistent, unreasonable hatred of a parent, despite every effort to feel kindly; inability to be courteous to anyone who wears spectacles; anger at any and every authority; disgust at nasturtiums; nausea at the color brown; submissiveness to every individual with crooked teeth; grief at rainbows; automatic tender emotion for every red-haired representative of the opposite sex; automatic infatuations, in a young man, for tall, dark, thin, elderly servant women, and for no other persons; in a young woman, for her father's office boy regardless of his race, age, or similarity to the last office boy, and regardless of her father's other employees; sexual attraction to members of the same sex, to children, to hair, to white clothing, to high-laced shoes, to feathers, or to any other unnatural object; lack of sexual responsiveness in suitable circumstances; joy at funerals; ecstasy at inflicting, wit-

nessing, or experiencing pain; "imaginary" pains and illnesses; the obsession to test a door ten times to be sure that it is locked; non-anatomical speech disorders, such as mutism except for talking in sleep, stuttering except when singing, inability to read aloud what one has written oneself while able to read anything else aloud, or compulsively expressing aloud ideas the individual would prefer to avoid; compulsive actions, like stealing, setting fires to barns, turning the head, or winking excessively; continual spasms of the throat, or of the muscles of the hand; queer paralyses which come and go; blindness, deafness, or anesthetic areas on the skin, which likewise come and go; and odd changes of consciousness, into trance, into stupor, or into a "different personality" like Dr. Jekyll's *alter ego*, Mr. Hyde.

Obviously, these phenomena are more serious than the everyday mental abnormalities. Usually, however, they are not serious enough to require institutional care or even special treatment, and often they show spontaneous remissions. Their causes are largely if not wholly psychological. The technical name for all these minor mental disorders is *psychoneuroses*. Under this term come such rough diagnostic categories as neurasthenia, psychasthenia, and hysteria. (Popularly, hysteria means undue emotional excitement; but technically, it means a mental disorder with rather special symptoms.)

Major mental disorders, in our society, may be observed in many inmates of institutions for the insane and the epileptic, and in some individuals who are not institutionalized because their conditions are harmless, protected, or unrecognized. On the whole, the major mental disorders are the most unsatisfactory to treat. Whatever their causes, these disorders often involve seriously both psychological and physiological functioning. For most of the cases, psychological treatment alone can do little; and for many of them, no sure cure is known. The major mental disorders comprise the psychoses; epilepsies; psychopathic personalities (a technical though somewhat doubtful category); psychotic alcoholism and drug addictions; and severe mental disorders from epidemic encephalitis, from pellagra, and from various other organic disturbances.

That the layman recognizes the minor and the major mental disorders, more or less explicitly, as disorders of integration is clear when he refers to a case as "a mental upset," "breakdown," or "going to pieces."

Importance of Dynamic and Abnormal Psychology

Dynamic psychology, the study of motivation, has gained much from abnormal psychology and, in turn, greatly helps to explain abnormal psychology. Dynamic psychology also helps to explain social, educational, and general psychology. Naturally, it overlaps the abnormal field; for example, dynamic psychology includes conflict, which is central to abnormal psychology.

Abnormal psychology is likewise important both practically and theoretically.

Most striking is *the cost of the major mental disorders*. About as many hospital beds are occupied by mental patients as by sufferers from all other ailments combined. To be sure, beds are usually allotted to mental patients for a longer period than to other patients. In the United States, one out of every 150 adults is a patient in a mental hospital. Apparently, in the United States, about one out of every 10 babies will develop a mental disease at some time during his life.¹

One student of statistics observed that, owing to the greater length of life with modern medicine, mental disease increases as physical disease decreases; that the rate of mental disease is conspicuously higher in cities than in rural districts (and the country is becoming increasingly urban); that the rate of mental disease is higher among inferior stocks than among superior stocks; and that the inferior stocks are multiplying most rapidly. He concludes that mental disease is increasing.² Other observers doubt this conclusion.³ We do know that more mental cases are recognized and hospitalized now than formerly.

True, not every commitment to a hospital is permanent. During a ten year period, 56% of all admissions to the Boston State Hospital, exclusive of deaths and transfers, were kept in residence for not longer than a year. "Roughly, the chances are that in ten years' time, out of each 100 patients discharged from the civil state hospitals of New York, 55 will be living in the community, 21 will be resident again in a mental hospital, one will be found in some other institution, and 23

¹ Carney Landis and James D. Page, *Modern Society and Mental Disease*, 1938, 24-25 (Rinehart); same authors, in F. R. Moulton and P. O. Komora (eds.), *Mental Health*, 1939, 149 (Science Press); Benjamin Malzberg, in Joseph Zubin (ed.), *Trends of Mental Disease*, 1945, 51 (King's Crown Press). Cf. also Herbert Goldhamer and Andrew W. Marshall, *Psychosis and Civilization*, 1953, 11 (Free Press).

² Abstracted from Horatio M. Pollock, *Am. J. Psychiat.*, 1924, 3:423-431.

³ Cf. PA 9 2804, 10 1008, 3036; Landis and Page in Moulton and Komora, *op. cit.*, 154.

will have died either in the community or in a mental hospital. Forty-two of the 55 will have lived continuously in the community during the entire ten years, without a readmission to any institution; and of these 42, about 28 will have made positively good adjustments."⁴ Nevertheless, there are now some 600,000 persons in public and private institutions for nervous and mental diseases in the United States.

The annual cost of caring for these patients, together with the loss of their economic productivity, runs into the hundreds of millions of dollars.⁵ Yet these figures are only a part of the cost of the major mental disorders.

For nearly every patient in a mental hospital, a whole family is more disorganized than if the patient were merely physically ill. In many cases the family feels a social stigma.

The major mental disorders are associated with considerable crime. In one mental hospital, at least 25% of the 1262 male patients had committed or tried to commit crimes, either before or after their mental disorders were recognized. This was in a state in which the known criminally insane were kept in another hospital.⁶

As Bentley and Cowdry remarked, probably more mental cases are outside the hospitals than in. "Among the afflicted who are abroad in society, we must include not only the psychoneurotic who are under the care or advice of physicians, psychoanalysts, healers, magicians, cult leaders, quacks, astrologers, radio advisers, and the like. We must include also a great number of the queer, the vagrant, the flighty, the incorrigible, the suspicious, the irascible, the unstable, and the reclusive. All these are social hazards. All are individuals who, because of defective self-direction and of unbalanced performance, are more or less incapacitated for effective living. From this intermediate zone, moreover, come many of the derelicts who make up the dangerous classes of society."⁷

The cost of the minor mental disorders and of the everyday mental abnormalities probably far exceeds that of the major disorders, even though few sufferers from the lesser abnormalities are ever institutionalized. It seems impossible to calculate the harm wrought by a prejudiced or self-seeking statesman, by an obsessed, tyrannical leader, or

⁴ Adapted from Raymond G. Fuller, *Psychiat. Quar.*, 1935, 9:95, 100. Cf. also Benjamin Malzberg, *Ment. Hyg.*, 1952, 36:104-120.

⁵ Landis and Page, *op. cit.*, 26.

⁶ Milton H. Erickson, *Ment. Hyg.*, 1938, 22:459-476.

⁷ Abstracted from Madison Bentley and E. V. Cowdry, *The Problem of Mental Disorder*, 1934, 4-5 (McGraw-Hill).

by a persuasive but life-constricting "reformer"; the influence of a domineering or hypersensitive parent or teacher upon children; the personal influence of a cynical, maladjusted older friend; the consequences of infatuations; the happiness and affection destroyed by tantrums; the limitations put upon otherwise capable psychoneurotics by their phobias and other obsessions; the human barriers made by unreasonable dislikes of individuals and of ways of doing things; — in a word, it seems impossible to calculate the cost of every variety of unreasonableness.

"Business people have temperament. Good businesses are more often ruined by idiosyncrasies of owners than by any other cause. Business men and women are severely handicapped by outbursts of temper, by unreasonable demands, by stubbornness and by vanity.

"The indulgence of these weaknesses burdens many enterprises with thousands of dollars of unnecessary expense.

"Few temperamental business men are cured of their follies. Sometimes they can be induced to take long vacations—to play golf, to buy a yacht, to tour in foreign lands.

"In their absence the treasury can be fattened against the day of their return. It is a mistake to assume that a boss is neglecting his business when he is away from his desk. Often he serves best by letting his assistants do the work." ⁸

According to a psychiatrist long associated with a department store, one out of every five employees in mercantile establishments is a problem individual.⁹

While it is not clear that all or even most of the disorders mentioned can be prevented, the field is worth studying to learn the facts of disorder and to learn what we can about prevention.

Abnormal psychology is important also for several special fields.

The first of these is *medicine*. Physicians know that every patient, whatever his illness or injury, presents two definite problems, (1) his primary disability and (2) his mental attitude toward it. Often the doctor cannot treat the physical problem successfully without treating the patient's attitude, which is a psychological problem. According to one estimate, about 30% of the patients that consult gastrointestinal specialists have nothing more nor less than gastric psychoneuroses; approximately the same percentage of those that consult the heart

⁸ Adapted from William Feather, in the New York Evening Post, quoted in Time, 1928, 12:32.

⁹ V. V. Anderson, *Psychiatry in Industry*, 1928 (Harper).

specialist or the urologist have psychoneuroses; and of the patients that go to the gynecologist, a much larger percentage have psychoneuroses.¹⁰ A noted diagnostician said that "half of any general practitioner's ordinary work is concerned with some type of psychoneurosis; not half that the neurologists do, but half that all of the doctors in the country are doing today is to treat psychoneurotics. That is important, because very few of the doctors have ever been trained to treat a psychoneurotic."¹¹

In *social work*, abnormal psychology helps to recognize and care for mentally disordered individuals and to prevent some mental disorders. Moreover, it relates mental health partly to social, economic, and political conditions and suggests some directions of social progress.

Abnormal psychology helps to explain *human behavior*, normal and abnormal. Much abnormal behavior occurs under stress. And who is not often under stress? Stress and the ways of reacting to it are integral to the material that lies ahead.

Further, abnormal psychology aids *self-understanding and self-management* even in normal persons. Sometimes the beginning student thinks otherwise. As he recognizes in himself a number of the symptoms about which he learns, he suspects that he ought to be a subject rather than a student of abnormal psychology.

"A writer in *The Spectator* confessed that he first contracted his ill habit of body, or rather of mind, by the study of physic. He said that he no sooner began to peruse books of this nature than he found his pulse irregular, and scarce ever read the account of any disease that he did not fancy himself afflicted with. Dr. Sydenham's learned treatise on Fevers threw him into a lingering hectic, which hung upon him all the while he was reading that excellent piece. 'I then,' he continues, 'applied myself to the study of several authors who have written upon Phthisical Distempers, and by that means fell into a consumption, till, at length, growing very fat, I was in a manner shamed out of that Imagination. Not long after this, I found in myself all the symptoms of the gout, except pain, but was cured of it by a treatise upon the Gravel, written by a very ingenious author, who (as it is usual to convert one distemper into another) eased me of the gout by giving me the stone. I at length studied myself into a complication of distempers, but, accidentally taking into my hand that ingenious discourse written

¹⁰ Max Mayer, in an address before the Association of Consulting Psychologists, New York, March 15, 1935.

¹¹ Adapted from Richard C. Cabot, quoted in Arthur I. Gates, *Elementary Psychology*, 1928, 271-272 (Macmillan).

by Sanctorius, I was resolved to direct myself by a scheme of rules which I had collected from his observations." ¹²

Actually, the student is a poor psychologist if he cannot understand much abnormal psychology through what he has experienced in himself. He should know, however, that to have a mental disorder, he must have the symptoms severely and in the right combination. One or two, or even a half-dozen, "symptoms" alone may not make a disorder; and often the self-diagnosed "symptom" is not a symptom but a misunderstanding. This is the lesson that medical students have to learn when they begin to discover every textbook malady in themselves.

Students of abnormal psychology are sometimes disturbed upon observing mental cases. One class visited a state hospital where the patients shown were particularly depressing. A student who was much upset by this visit said later, however, that she thought that the visit was most valuable, both for education and for mental hygiene. "It upset me at the time," she said, "but it would not again." The next trip did not. She agreed with other members of the class that to study the disorders directly, and to discuss them, develops immunity to such disturbance.

Between 1927 and 1930, 125 students upon completing a course in abnormal psychology were handed questionnaires which asked how the course had affected these students' possible morbid introspectiveness and their outlook on life. The questionnaires were to be returned unsigned. Only 78 students replied; but apparently the 47 students who failed to reply were not a morbid lot but were merely indifferent or busy. Of the 78 who replied, 3% thought (without giving reasons) that they were somewhat harmed by the course; 4%, that the course had not affected them personally; and 92%, that the course had benefited their mental hygiene.

Of the students who gave reasons for this benefit, most felt that it is better to know the facts than to be mystified and ignorantly apprehensive about abnormal psychology. As one student put it, "Accurate knowledge gives one a healthy attitude toward life: ignorance or doubt makes for anxiety." Others mentioned increased self-understanding, self-knowledge. "I understand," wrote one, "how much re-education can do, that there is a chance for a person to change his outlook, and make it healthier." ¹³

¹² Adapted from Daniel Hack Tuke, *Illustrations of the Influence of the Mind Upon the Body in Health and Disease. Designed to Elucidate the Action of the Imagination*, 1873, 86-87 (Henry C. Lea).

¹³ Adapted from W. S. Taylor, *J. Abn. Psychol.*, 1932, 27:40-47.

An instructor whose course was called "Mental Hygiene" reported that autobiographies required from the students before and after taking the course indicated that the course helped most of the students to think about themselves more freely, to talk with others about their own less-welcome qualities and limitations, and to relate their characteristic reactions to earlier life experiences. The course brought out some anxiety, and a tendency to dwell upon the unlovely aspects of life; but apparently it aroused constructive forces destined to neutralize those trends and to make the individual more stable than before. Naturally, the course did not adjust ingrained neurotic difficulties which ordinarily require psychotherapy.¹⁴

Abnormal psychology helps to interpret *history, art, and religion*. As Hollingworth remarked, "The character of Jeanne d'Arc, the influence of the Emperor Constantine, the behavior of Nero, the phenomena of the Crusades, the witchcraft fever, are, without this insight, misunderstood. The characteristics as well as the themes of famous literary men and women are often only a muddle or a mystery until the light of abnormal psychology is focused upon them. The paintings of Blake and of Watts, the tales of Maupassant, Hawthorne, Sudermann, Tolstoi, the sketches of human types given by Masters and by Anderson, demand such understanding. Abnormal psychology throws light on primitive magic; the demonological interpretation of nature; the maunderings of the ancient oracles; the lives and experiences of the saints; the visions of prophets; the reports of miracles; and even symbol and ritual, conversion, and the ecstasy of mystics."¹⁵

Finally, abnormal psychology is very important for *psychological theory*. In the long run, the theory is the most important part of any subject. Theory is not naturally alien to practice, and every theory has practical implications. No project or explanation can be "right in theory, but wrong in practice." Adequate theory derives from facts; it covers all the facts as economically as possible; it holds these facts in perspective; it indicates lines of research; it integrates its field with allied fields; and always it conduces to sound practice. Furthermore, the "disinterested" theoretical approach is deeply interesting and best conserves the intellectual honesty and the sound outlook of the investigator or student.

¹⁴ Cf. Percival M. Symonds, *Ment. Hyg.*, 1941, 25.568-575. Cf. also PA 17 2507, 20 1299.

¹⁵ Adapted from H. L. Hollingworth, *Abnormal Psychology: Its Concepts and Theories*, 1930, 20 (Ronald). Cf. Joseph Grasset, *The Semi-insane and the Semi-responsible*, 1907, 180-269 (Funk); Douglas M. Kelley, *22 Cells in Nuremberg*, 1947 (Greenberg); G. M. Gilbert, *The Psychology of Dictatorship*, 1950 (Ronald).

The great pathologist Virchow saw the abnormal as the normal under altered conditions. Goethe remarked that "it is when nature is in her abnormal phases that she reveals her secrets." An early French psychiatrist pointed out that "under the calm appearance of reason, in the peaceful course of the actions which characterize it, the observer could discover but imperfectly the secret springs, by whose regular motion it is prepared, formed, and strengthened. It is when these springs are broken, it is when the motion is stopped—in a word, it is when the mind is in ruins that one discovers clearly the origin, the unity, the close and mutual dependence of our sentiments, of our perceptions, of our ideas, of our memory, of our judgement, of our reason, of our wishes, of our actions."¹⁶

The abnormalities are, in effect, experiments performed by nature: nature takes a human subject, varies his mental conditions, and throws some mental processes into relief. Of these "experiments," the major mental disorders may seem the most striking, but often they are too confused to teach us very much. The minor mental disorders are more frequent, and often are relatively clean-cut. Consequently, they illuminate major mental disorders, everyday mental abnormalities, and motives and mechanisms. The everyday mental abnormalities are of course the most frequent and familiar of all the "experiments." Often they are surprisingly clear, revealing motives and mechanisms, and even exemplifying mental disorders.

All these observations about abnormal psychology do not imply that it is a finished science. Though abnormal psychology is perhaps the oldest field of psychology, it is too little developed to answer all the questions that we should like to have answered. It is too little developed because the field is complex, our prejudices are cumbersome, and our data are limited. Workers in the field have learned, however, that the abnormal shades imperceptibly into the normal, that the same laws apply to both, and that the abnormal repays study.

The Content of the Book

This book undertakes a survey of dynamic and abnormal psychology as related essentially to general psychology.

Our definition of abnormal psychology excludes from this survey innate genius, special abilities and defects, and feeble-mindedness, because these are variations in endowment rather than failures of inte-

¹⁶ M. Pariset (Turner, tr.), *J. Insan.*, 1845, 2:40.

gration. The definition also excludes the physiological aspects of sleep; but it includes the relation of sleep to dissociation, dreams, and other forms of disintegration or nonintegration.

Of all the abnormal material included, we shall pay most attention to the everyday mental abnormalities and the minor mental disorders.

The book will not prepare the student to diagnose or to treat mental disorders. Many mental disorders can be recognized and treated only through special medical and clinical training. Even where medical factors are not involved, diagnosis and treatment require further study and clinical training under capable supervision.

Technical terms we shall try to use as harmoniously as possible with general English usage, with psychological usage, and with the most satisfactory theory. Since these several interests often conflict, however, we shall have to limit a good many terms to particular meanings and introduce some new terms for phenomena not clearly indicated otherwise. A systematic arrangement of terms follows the last chapter; and principal terms are listed in the Index and Glossary.

References are explained and further readings are suggested in the Preface.¹⁷

The Student's Approach

This field, like others, calls for searching, critical open-mindedness. When Charles Darwin was a young man examining rocks in Wales, he failed to see the glacial phenomena—scarred rocks, perched boulders, moraines—all around him, because he had not yet awakened to comprehend what he saw.

Every study requires care lest one find merely what one is looking for. Cults in abnormal psychology seem to reflect largely their founders' and disciples' individual needs.

The honest student cannot be a disciple. The student seeks; the disciple follows. The more inclusive the student's needs, the more devoted he will be to truth, and the more reasonably he can evaluate what he finds in this book or elsewhere.

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¹⁷ Cf. vi, above.

14 Dynamic and Abnormal Psychology

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2 Related Fields

If, therefore, anyone wishes to search out the truth of things in serious earnest, he ought not to select one special science, for all the sciences are conjoined with each other and interdependent, he ought rather to think how to increase the natural light of reason, not for the purpose of resolving this or that difficulty of scholastic type, but in order that his understanding may enlighten his will to its proper choice in all the contingencies of life. In a short time he will see with amazement that he has made much more progress than those who are eager about particular ends, and that he has not only obtained all that they desire, but even higher results than fall within his expectation.

Descartes

In so far as they have been developed, dynamic psychology and abnormal psychology are "pure sciences," not "applied sciences" or "arts", that is, the two fields are concerned with truth in the abstract, truth which should be broadly applicable, rather than with immediately profitable applications.

There are several fields, some of them "pure sciences" and some "applied sciences" or "arts," which are more or less related to abnormal psychology and which should be distinguished from it. To consider these fields briefly, before returning to our own, will make more clear the place of abnormal psychology in modern thought. The related fields include psychopathology, clinical psychology, psychotherapy, psychoanalysis, neurology, neuropathology, psychiatry, occupational therapy, social work, psychiatric social work, and mental hygiene.

Psychopathology, in one sense of the term, is the science of mental disorders. This definition makes psychopathology, like abnormal psychology, a "pure science." It differs from abnormal psychology in that psychopathology covers a more restricted field, the field of definitely *pathological* failures of integration. In another sense of the term, psychopathology is synonymous with psychopathy, which means mental disorder as such, pathology of the psyche. A psychopathologist thus studies psychopathic individuals to learn the principles of psychopathology. In practice, "psychopathology" is used usually in a logical rather than in a vocational sense, since one studies psychopathology by studying psychiatry, also perhaps psychoanalysis, if not abnormal psychology, and usually the psychopathologist is a psychiatrist by vocation.

Clinical psychology is the technical application of psychology to individual adjustments. It is, however, a field not sharply defined, because authorities have not yet agreed as to how much psychology may be applied to individual adjustments by the clinical psychologist, and how much by the psychiatrist, the psychiatric social worker, and others. In some places the clinical psychologist is limited to giving intelligence tests and perhaps other mental measurements. This limits him to psychometry. In other places the clinical psychologist tests intelligence, special abilities and defects, personality traits, and vocational aptitudes, so far as possible, he examines techniques of study and work; he may look into emotional adjustments, attitudes, and relations to home and fellows, and he may undertake to correct reading habits, speech defects, behavior difficulties, or even, under psychiatric supervision, definite disorders whose causes are psychological.

Psychotherapy is treatment by mental means. Thus psychotherapy does not itself include physical, medical treatment. Psychotherapy applies to disorders only so far as they have mental causes, that is, are psychogenic, and can yield to mental influences. (Mental does not mean occult.) For many disorders, including many mental disorders, medical treatment is essential. Enlightened psychotherapists will work with enlightened physicians, also with geneticists, sociologists, educators, and social workers, for human health and happiness.

Throughout human history, parents, priests, physicians, and other counselors have applied psychotherapy, of one sort or another, more or less unwittingly. Many cultists and quacks have applied it, knowing it to be a powerful instrument but not knowing how or where it works;

hence they have often misapplied it and brought it into disrepute. Some physicians and other professionally minded persons have applied it wittingly and well; but often they have done so surreptitiously, lest they be thought unprofessional, and they have not understood its psychological principles. A few persons have applied psychotherapy, and an increasing number do apply it, with much understanding. We shall hope to gain some understanding of psychotherapy.

Psychoanalysis means the doctrines and practices of Freud or, more broadly, those also of Jung, of Adler, and of others whose views stem from Freud's. In either sense of the term, psychoanalysis means "deep therapy", that is, psychotherapeutic analysis to free the patient from complexes, subconscious fixations, and control by repressed motives. In the next chapter we shall consider Freud, Jung, and Adler historically.

Neurology is the anatomical and physiological science of the nervous system. It is thus a branch of biology, which is a pure science. The findings of neurology are important for abnormal psychology, psychopathology, and psychiatry.

Neuropathology, in one sense of the term, is the anatomical and physiological science of the disordered or diseased nervous system. It depends largely upon neurology for its basic principles. In another sense, neuropathology means neuropathy, disorder of nervous tissue. The physician who applies his knowledge of neuropathology to nervous and mental patients is variously called a neurologist, a neuropathologist, a neuropsychiatrist, or a psychiatrist.

Psychiatry is the branch of medicine which deals with mental disorders. Like the other branches of medicine, psychiatry draws upon the relevant pure sciences, which for it include anatomy, physiology, psychology, psychopathology, neurology, and neuropathology. To heal mental disorders so far as possible, psychiatry utilizes medication, hygiene, and often clinical psychology, psychotherapy, occupational therapy, and psychiatric social work.

Occupational therapy is treatment through constructive activities. For example, if the doctor says that certain muscles of a patient's right arm need exercise, the occupational therapist may interest the patient in

making baskets by a method which will use those muscles. To improve general outlook, occupational therapists engage patients in basketry, weaving, furniture making, typewriting, creative arts, and even editorial work. There are special schools for training occupational therapists.

Social work is systematic effort to help underprivileged, suffering, or antisocial individuals to become happier members of society. As applied methodically to the special individuals mentioned, social work becomes social case work. Most social workers are trained now in schools for social work.

Psychiatric social work is the application of psychiatry in social case work. For many psychiatric social workers, this means helping the individual to adjust to himself and to his physical and emotional environment. The modern psychiatric social worker has had special professional training, most likely at one of the schools for social work.

Mental hygiene, finally, means the conservation and development of mental health. At present it represents a rather loosely organized and enthusiastic "movement" in which doctors, teachers, social workers, and many others cooperate so far as they have learned how to cooperate for the public good.

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Mental hygiene: PA 10 4065 and passim.

3

Historical Approach to Abnormal Psychology

Psychology has a long past, but a short history.

Hermann Ebbinghaus

Respect for experience is respect for its possibilities in thought and knowledge as well as an enforced attention to its joys and sorrows. Intellectual piety toward experience is a precondition of the direction of life and of tolerant and generous cooperation among men. Respect for the things of experience alone brings with it such a respect for others, the centres of experience, as is free from patronage, domination and the will to impose.

John Dewey

Even a brief sketch of the history of abnormal psychology enables one to understand much of the present and perhaps something of the future of the field. The history also records ideas that have been tried and found wanting and offers ideas that seem worth developing further.

Magic, Animism, and Theological Views

Magic is based upon simple associations and wishful thoughts. Animism explains life, waking, sleeping, dreams, mental disorders, trance states, and death through man-like ghosts or souls that occupy and desert bodies. Early and medieval theological views assume two great Souls, the Devil and God, and relate bad souls to the Devil, and good souls to God. These traditions have affected thought and practice about

our mental life, normal and abnormal, far more than most people realize.

Thus, after Greek philosophy and science were replaced by "Christian" orthodoxy in Europe, most medical treatment of mental disorder was magical; for instance, a prescription that an epileptic should wear on his arm a nail from a shipwreck. Priests, ministers, and many physicians resorted also to incantations and punishments to drive out "invading devils." Despite protests by occasional scientific liberals, throughout the fifteen centuries of greatest theological domination, countless misunderstood persons were scourged, imprisoned, pilloried; thousands were subjected to more hellish tortures; thousands were excommunicated and exiled; and thousands were burned at the stake. No wonder some rebellious groups considered the Devil superior and even worshiped him.¹

Ontological Views

Ontological views seek to explain phenomena not by spirits but by metaphysical substances or forces. These views we shall classify roughly under the headings *undifferentiated ontological views*, *mentalistic and dualistic views*, and *materialistic views*.

Undifferentiated Ontological Views

We do not know exactly the theories of the ancient Hindus, Mongols, Egyptians, and Greeks who practiced what we call hypnotic and other forms of psychotherapy. We do not know the nature of the "fluid or emanation" which Paracelsus thought came from the stars and other bodies, or the "magnetic fluid" posited by Pomponazzi, Goclenius, Maxwell, and van Helmont, or the "ferments" ascribed to Greatrakes, or the "animal magnetism" in which Mesmer believed. We know only that all of these substances or forces were supposed to affect mental health.

Mesmer (1734-1815) and his followers, *Puységur*, *Deleuze*, *Elliotson*, and *Esdaile*, among others, "magnetized" (hypnotized) many patients,

¹ Cf. Andrew Dickson White, *A History of the Warfare of Science with Theology in Christendom*, 1907, 2:28, 98-111, 120 ff., and passim (Appleton); H. L. Hollingworth, *Abnormal Psychology*, 1930, 25-26, 32-42 (Ronald); Guillaume de Saluste, seigneur du Bartas, *The Imposture* (Sylvester, tr.), lines 44 ff., 218 ff.; John Milton, *Paradise Lost*, Book IV, lines 802 ff.; Ewen C. L'Estrange, *Witchcraft and Demonianism*, 1933 (Heath, Cranton); Margaret Alice Murray, *The God of the Witches*, 1933 (Low); George Lyman Kittredge, *Witchcraft in Old and New England*, 1928 (Harvard Univ. Press); Edward McNall Burns, *Western Civilizations*, 1947, 499-502 (Norton); Encycl. Soc. Sci., 1931, 5:120; J. W. Wickwar, *Witchcraft and the Black Art*, 1925 (Jenkins).

apparently curing some of them. Thus the Mesmerists stimulated more scientific study of psychogenic disorders, hypnotism, and suggestion.²

Mentalistic and Dualistic Views

Descartes (1596-1650) divided man's make-up into mind and matter. *Herbart* (1776-1841) emphasized the mind's competing ideas, complexes, and blends of ideas, conscious and subconscious. *Schopenhauer* (1788-1860) considered basic an unconscious will, essentially sexual, whose wishes distort our thoughts and acts. *Hartmann* (1842-1906) set forth an optimistic view of unconscious thought and guidance. The popular cults *New Thought* and *Christian Science* base everything on thought and mind. *The Autosuggestion Movement*, whose leaders were Coué (1857-1926) and Baudouin (1893-), taught that "the imagination is stronger than the will."

The Psychoanalytic Movement is also apparently mentalistic or dualistic or both. Of this important development we shall consider only three leaders, Freud, Jung, and Adler,* and one apostle, W. A. White.

Sigmund Freud (1856-1939) was born in a little town in that part of Central Europe which later became Czechoslovakia. At the age of 17 he entered the University of Vienna where he pursued various studies, gradually spending more and more time in the physiology laboratory. His first major research problem was concerned with the histology of the central nervous system. After doing considerable work in physiology, he decided to enter the medical profession and took his M.D. from the University in 1881.

As a young doctor he published or read before the Medical Society a number of papers on the course of the tracts in the medulla oblongata and on clinical observations of patients with organic diseases of the nervous system. The state of general medicine, and especially of psychiatry, at that time was not very satisfying to one with Freud's keen interest in people, and his inquiring mind led him to seek more insight into the function and malfunction of personality than seemed to be

² Cf. James J. Walsh, *Psychotherapy*, 1923, 6-14 (Appleton); J. R. Whitwell, *Historical Notes on Psychiatry*, 1937, 1-30 (Lewis); Griffith W. Williams, in Leslie M. LeCron (ed.), *Experimental Hypnosis*, 1952 (Macmillan); Otto Stoll, *Suggestion und Hypnotismus in der Völkerpsychologie*, 1904 (Veit, Leipzig); Margaret Goldsmith, *Franz Anton Mesmer*, 1934, passim (Doubleday); Joseph Jastrow, *Fact and Fable in Psychology*, 1900 (Houghton Mifflin); J. Milne Bramwell, *Hypnotism: Its History, Practice, and Theory*, 3rd ed., 1921 (William Rider).

* The part on Freud, Jung, and Adler was written by Austin B. Wood.

current in Vienna. He accordingly journeyed to Paris in 1885 to study the work on hysteria that the great Charcot was doing. Here he was able to study at close hand the experiments in hypnotism which were being carried on with hysterical patients at the Salpêtrière. He saw all the phenomena of hysteria produced by hypnotic suggestion as well as by traumatic events in the lives of patients. Undoubtedly, as he says himself, Freud learned a great deal from Charcot. The time he spent with him was a time filled with eager inquiry into the nature and genesis of one of the most significant forms of malfunction, hysteria.

After a number of months in Paris he returned to Vienna, where he took charge of the Department of Nervous Diseases of Children at the Kassowitz Institute. While here he wrote several monographs on cerebral palsies in children.

In 1886 he married and set out to build up a practice as a physician specializing in nervous diseases. What he had seen in Paris was still very much in mind, and, when it came time for him to read a paper before the local Medical Society, he chose to demonstrate a case of hysteria in a male patient. The members of the society, who knew their textbooks, refused to believe it possible! Didn't the books say that hysteria occurred only in women?

In his practice with neurotics he was following what he had learned from Charcot and using hypnotic suggestion as his main therapeutic instrument. But some patients could not be hypnotized. With others the depth of hypnosis was slight, and, with nearly all patients, the effectiveness of the hypnotic suggestions fluctuated with changes in the personal emotional relationship between physician and patient. Desiring to perfect himself in the technique of hypnosis, he journeyed, in 1889, to Nancy where he studied the methods of Liébeault and Bernheim. Of his experience at Nancy, Freud writes: "... I received the profoundest impression of the possibility that there could be powerful mental processes which nevertheless remained hidden from the consciousness of men." It is not difficult to imagine how this impression must have forced itself upon him at this time when we recall that he was observing demonstrations of posthypnotic suggestion, where operator, spectators, and everybody but the recently hypnotized subject knew the origin of the impulse which controlled his behavior.

For the next five years he busied himself with his practice, trying all the time to improve the therapeutic methods used. One of his efforts along this line was to use hypnosis not only for therapeutic suggestion but also as a means of bringing to light experiences which the patient

had not been able to report in the ordinary waking state. In some of this work he collaborated with Dr. Josef Breuer, a well-established family physician, who had published the results of research on the physiology of breathing and upon the equilibratory sense. Breuer had found that one of his hysterical patients was relieved of her symptoms if she could be brought to "relive" the experience which originally gave rise to the symptom, that is, if she could recount the events concerned and at the same time allow herself to experience the emotion which, for one reason or another, had originally been stifled or repressed. In most cases the patients could not recall the origins of their various difficulties while in the waking state. But Breuer found while working with this patient that, if she was put into a deep hypnotic trance and assured that she was going to remember the original event, not only would she remember it, but it would be re-created with all the appropriate depth of feeling and emotional tone. Then, when the patient was awakened from the trance, the particular symptom concerned was found to have disappeared. It was found that these symptoms had generally arisen when the patient had had some sort of experience, usually unpleasant, but, because of certain factors in the total situation, had refrained from expressing the emotion appropriate to the occasion. This affect, then, had been diverted or repressed, and the result of this diversion was the symptom. The aim of the therapist was to enable the patient to discharge the pent-up emotion, and Breuer called the method "abreaction" or "catharsis."

Freud used the method with some success with some patients but was still dissatisfied because of the shortcomings of hypnosis mentioned above. At this point he recalled certain demonstrations by Bernheim which he had witnessed at Nancy. In these experiments, the subject awoke from the hypnotic trance with no memories of what had taken place while he had been in the trance. Bernheim would then assure the subject, now in the normal waking state, that he really did have the memories, that he could recall them if only he would try hard enough, and would in some cases lay his hand upon the forehead of the subject while urging him to try very hard to recall what had taken place. When this was done the subject was able, haltingly at first, but with more and more ease as he went along, to recall all the events which had taken place while he had been in the trance. Freud decided to attempt to adapt this approach to his work with hysterics, and with this step perhaps the first technical feature of major importance in the psychoanalytical method was invented or discovered.

Carrying on this work with a great deal of careful observation of his patients' words and actions, he found that they could remember more and more if they were pushed to do so. Some things required more effort to uncover. "Why should this be?" he asked himself. The answer he arrived at was that there must be something holding these things back from consciousness, and thus was born Freud's theory of *repression* in its earliest form.

This theory ran somewhat as follows: An impulse in the consciousness of the subject, something he would like to do, or perhaps that he wants very much not to do, is opposed by a counter-impulse (resistance). In normal adjustment, either the impulse is discharged, the subject acts in accordance with his wish, or the impulse is repudiated, the subject willingly foregoes that particular wish; it ceases to be effective, either consciously or unconsciously. In neurosis, however, the subject is torn between two strong desires and, like the fabled ass between two bales of hay, is unable to renounce either. On the one hand he has a strong impulse or desire to do something. On the other hand, if he follows this impulse, the consequences for him will include, or at least he fears (whether rightly or wrongly is immaterial) that they will include, consequences which he strongly wishes to avoid.

In many cases the first wish is a strong natural impulse and the counter-wish is the product of parental precept or social conditioning, which has taught each child growing up in a given culture that certain acts are "base," harmful, or improper and unworthy of a "good" person. The neurotic subject, then, strives unwittingly not to recognize his "base" impulse, to thrust it out of consciousness, and to deny it motor realization. But in this process the impulse loses none of its force. It has been repressed, but it remains powerful, and the ego of the individual must put forth its energies to keep this impulse from reaching consciousness and from issuing in action, an effort never wholly successful. For the repressed impulse takes many forms, appears in many disguises, and frequently breaks through the defenses and issues into action as a symptom, as in "conversion" hysteria.

The task of therapy now became, not to "abreact" an unfortunate emotion, but to "uncover repressions and replace them by acts of judgment which might result either in the acceptance or rejection of what had formerly been repudiated." This method was no longer the "Abreaction Method" of Breuer and Freud but was, more specifically, psychoanalysis.

By this time Breuer and Freud had come to the parting of the ways.

Breuer had returned to devote his full time to his large private practice, leaving Freud, as Freud has written, "sole administrator of his legacy." So Freud, ever busy with a growing practice, continued to serve his patients, who provided him with a mass of observations on the functioning of the human personality. He strove constantly both to improve his techniques of treatment and to elaborate a theoretical conception of human nature that would enable him to understand the many puzzling facts which the reports of his patients brought to light.

Pursuing his enquiries into the psychoneurotic problems of his patients he was led further and further back into the earliest stages of their lives; and he found more and more frequently that the events which had given rise to the maldevelopments involved sexual function in one of its many forms. Freud explicitly states that this conception of the universal involvement of sexual problems in neurosis was not a preconceived notion of his but, rather, a conclusion which the facts forced upon him. In one place he writes, "I was not prepared for this conclusion and my expectations played no part in it, for I had begun my investigation of neurotics quite unsuspectingly." He was forced to recognize, in the etiology of the psychoneurosis, not only the role of sexual maladjustment, but also that the first of such episodes usually occurred some time between birth and the fifth year. It should be noted that Freud extended the concept of the sexual to include almost any pleasant contact, real or imagined, between two persons (e.g., simple bodily contacts, verbal love making, etc.).

Among the many puzzling memories which his patients reported, he was surprised to find that many patients recounted being seduced at a very tender age. In the case of female patients especially, the seducer was said to be the father. Of these reports Freud observed, in his *Autobiography*, "... I must mention an error into which I fell for a while and which might well have had fatal consequences for the whole of my work. . . . The majority of my patients reproduced from their childhood scenes in which they were sexually seduced by some grown-up person. . . . I believed these stories and consequently supposed that I had discovered the roots of the subsequent neurosis. . . . When, however, I was at last obliged to recognize that these scenes of seduction had never taken place, and that they were only phantasies which my patients had made up or which I myself had perhaps forced upon them, I was for some time completely at a loss. . . . When I had pulled myself together, I was able to draw the right conclusions from my discovery:

namely, that the neurotic symptoms were not related directly to actual events, but to phantasies embodying wishes, and that, as far as the neurosis was concerned, psychical reality was of more importance than material reality. I do not believe even now that I forced the seduction-phantasies upon my patients, that I 'suggested' them. I had, in fact, stumbled for the first time upon the 'Oedipus complex' [sexual attachment to the parent of the opposite sex], which was later to assume such an overwhelming importance, but which I did not recognize as yet in its disguise of phantasy. . . ."²

The technique which he was following at this time of relentlessly pressing the patient to recall more and more concerning certain topics selected by the physician had given him much insight into the structure of personality in his patients. But the demands it made upon both doctor and patient proved too strenuous, so he took the next step in the development of the technique by adapting the method of "free association" to his work. The patient was given "the fundamental rule of psychoanalysis," namely, to report *absolutely everything* which came to mind, no matter how trivial, irrelevant, or even shameful or disgusting it might seem. If this rule were not rigidly applied, the patient would very simply, although unwillingly, avoid attending to those hazy memories which led to the very core of his difficulties and would waste both his and the doctor's time in reporting on things which were, from the point of view of the neurotic difficulties, really irrelevant.

Even when the patient tried his best, however, to apply the "fundamental rule," it soon became clear that *resistances* developed to reporting or even recognizing certain memories or phantasies. But the discovery of these resistances proved to be but the first step in the process of resolving them. When Freud suspected that a patient was avoiding a certain topic because of resistance, he would report his notion to the patient together with his interpretation of why that particular subject was painful to him and why he was avoiding it. Sometimes this interpretation would immediately "click" in the patient's mind. He would understand how he had been avoiding an unpleasant but necessary task, and it frequently occurred that after such an interpretation the patient found less resistance present and was more easily able to bring those particular memories to the focus of attention. If the interpretation did not prove acceptable to the patient it was not forced upon him but was dropped until subsequent developments in the ana-

² Sigmund Freud, *Autobiography* (Strachey, tr.), 1935 (Norton).

lytical process had removed some of the resistance and the patient was ready to face this particular side of himself.

Another type of behavior which Freud found in nearly all his patients was a tendency to repeat, at different stages in their lives, whatever emotional reaction they had previously given to critical situations or experiences.

In the analytical situation this *repetition compulsion* took an especially significant form. In every analytical treatment there arose between analyst and patient an intense emotional relationship which varied from patient to patient, and in the same patient at different times during the course of the analysis, all the way from a very intense love to a deep and bitter hatred. This *transference*, as he came to see after considerable study, is simply a matter of the patient's repeating, in his dealing with the analyst, the emotional reactions which his own personal history has made characteristic for him. He also saw that there would be little likelihood that the emotional relations of the patient with the analyst would prove any exception to his general modes of emotional reaction. There would be no use, then, in trying to avoid the establishment of a transference in any analytical treatment. He, therefore, seized upon it and converted it into one of the main instruments of the process.

A typical course of the transference during an analysis is for it to develop in positive form (that is, the patient feels mild affection and respect for the analyst) during the early stages. At this period it can be used to bring the patient to accept suggestions from the analyst and thus readily to forward the process of analysis. Later on, however, it often turns to either passionate love or some strong form of hatred or scorn. It becomes, in short, another of the patient's forms of *resistance* to the process of learning the truth about himself. But even this development is not without its uses in the process of psychoanalytic therapy. For Freud found that by judicious injection of interpretations of these transference resistances, bit by bit, as the patient was able to accept them, he could be brought to the realization that he was repeating with the analyst his own typical modes of response to anyone with whom he found himself in a close emotional relationship, either positive (love) or negative (hate), and that these typical modes of response were but repetitions of his earliest emotional experiences. This realization, which, to be therapeutically effective, must be felt emotionally as well as recognized intellectually, is an important step in assisting the patient to develop new forms of emotional reaction more

satisfactory than the ones which brought him to seek treatment in the first place.

Another frequent observation was that, in telling what came to mind during analysis, a patient would often recount a dream which he had had during the previous night. Freud began to wonder if the dreams might not be related to the patient's difficulties, so he began to ask him to give whatever associations came to mind when he thought of the various elements in the dream. It frequently happened that the patient's associations to his dream turned out to be related to the troubles he was having in his waking life, and, furthermore, the associations showed up meanings in the patient's waking behavior which he had not hitherto suspected that it had. After much further work along these lines, Freud concluded that dreams are the expressions of those impulses which, in the waking state, are repressed and kept from consciousness. As a rule, the meaning of the dream is not obvious and its interpretation is not a simple matter; nevertheless, he was able to demonstrate that in many cases "a dream is the (disguised) fulfillment of a (repressed) wish." The facts which led him to this conclusion are set forth in *The Interpretation of Dreams*, of which he has written: "It contains . . . the most valuable of all the discoveries it has been my good fortune to make. Insight such as this falls to one's lot but once in a lifetime."

Another discovery that came out of the careful scrutiny he gave to all the many bits of their life histories which his patients reported to him was the close relationship that exists between forbidden, repressed wishes and many of the "errors" and "accidents" of daily life. Slips of the tongue, unintentionally embarrassing remarks, the forgetting of important names or obligations, awkward actions, and even self-injuries were frequently found to be in reality not "accidents" at all (that is, not uncaused by any intention of the patient) but determinate actions caused, however, by wishes which the patient himself was unaware of. The results of this study were embodied in *The Psychopathology of Everyday Life*, another contribution to the understanding of the psychology, not only of neurotics, but of so-called normals as well. In this connection it is well to note that Freud has written (of course he is not the only one to maintain it) that "neuroses have no peculiar content which belongs exclusively to them, but neurotics break down at the same difficulties that are successfully overcome by normal people."

Up to this time (about 1905) Freud had been working in professional

isolation, unknown or rejected by fellow doctors and scientists. But now his work began to compel interest and recognition. Jung and Bleuler at Zurich and a small group of younger people from various lands who attached themselves to Freud as pupils in Vienna began to take a serious interest in the new approach to personality. In 1908 the friends of the young science met in what proved to be the first of a long series of International Congresses of Psychoanalysis at Salzburg. In 1909 G. Stanley Hall invited Freud and Jung to give a series of lectures on psychoanalysis at Worcester, Massachusetts, on the occasion of the celebration of the twentieth anniversary of the founding of Clark University. In rapid succession two journals were established and then, in 1910, the International Psychoanalytical Association came into being. The young science had become a lusty infant and was growing fast.

At the turn of the century *Carl Gustav Jung* (1875-) was a young man of profound learning and exhaustive knowledge of the cultural heritage of the world. He was a university lecturer and practicing psychiatrist and worked under Bleuler at the Burghölzli, a large mental hospital near Zurich. This hospital maintained very fine clinical facilities and was the leading training center in Europe for psychiatrists. It was here that Adolf Meyer, "Father of American Psychiatry," received much of his clinical training. Both Jung and Bleuler had become greatly interested in the new ideas concerning mental life which were coming out of Vienna. They had corresponded with Freud, and they were among the group who made the journey to Salzburg to attend the first International Congress of Psychoanalysis (1908). Freud was much impressed by the handsome and brilliant young Swiss, and, when the International Psychoanalytical Association was formed in 1910, he arranged that Jung should be chosen its first President. Jung also became the first editor of the *Jahrbuch für psychopathologische und psychoanalytische Forschungen*, the first journal devoted to psychoanalytical studies.

At first Jung had taken wholeheartedly to Freud's teachings and had proved an apt pupil. He made a number of significant contributions to the psychoanalytical literature. But soon the thinking of these two strong men came to a parting of the ways. The first signs of the rift between them became apparent during the trip to America in 1909 when, in private discussions on the boat, irreconcilable differences began to appear. Jung was convinced that Freud was in error to insist that the primary motivating force of all human behavior, the libido,

was entirely sexual, even in a broadly conceived sense of that term. Jung saw in the libido a much more universal force involving the various needs, biological and psychological, of the individual. On this fundamental difference their friendship and their scientific collaboration foundered, though, throughout his scientific career, Jung's contribution shows clearly its Freudian ancestry. In 1911 Jung resigned from the International Psychoanalytical Association and set out to develop a system of psychology along lines unhampered, though not uninfluenced, by Freud. Only a few years later he withdrew from his university connections and his practice to spend many years among various primitive groups, returning to the academic sphere only in 1934, when he again started lecturing at the University of Zurich.

Jung's contributions to "Depth Psychology" have been of two types. He has extended some of the Freudian concepts, made them broader in scope, and he has taken certain ideas already current in general psychological thought and given them a special application or significance in terms of depth psychology.

In an earlier time Galton had invented the Association Method. Wundt had developed it as a tool for the investigation of conscious processes in thinking and problem solving. But it remained for Jung to discover that many of an individual's responses in an "association test," not only in their content, but in their timing, in their intensity, and in other respects, were affectively determined. He made this method an instrument for the exploration of emotional states and unconscious processes. This contribution may be considered especially significant in that it offered one of the first possibilities for a strictly experimental study of depth-psychological factors.

A second contribution to psychological thought was Jung's development of the concept of psychological types. He distinguished Attitude Types and Functional Types. The attitude of the Extrovert is that of one who is interested in reality, in people, in the events transpiring around him, for their own sake; while the Introvert is interested in the same people and events only in terms of his own responses to them, in how they affect him emotionally. In other words the libido of the extrovert is directed outward, while that of the introvert is turned inward. Most people show characteristic modes of mental function, according to the Jungian typology. Sensation yields awareness of the nature of things. Feeling brings us their values. Thinking shows us their relationships, and intuition divines relations and qualities beyond the immediate grasp of sensation and thought. Each of these four modes of

function is to be expected in any person, but different people will characteristically manifest one or another more often, and more energetically, than the others.

There are recognizable, then, the Perceiving Type, the Feeling Type, the Thinking Type, and the Intuitive Type. These types may be found in either an extrovert or an introvert. Accordingly, we may have a perceptive introvert, a perceptive extrovert, an intuitive extrovert, and the other possible combinations. Moreover, it soon became evident that there are few if any pure or complete introverts or extroverts; so it was necessary not only to recognize an "ambivert," who is as often the one as he is the other, but also other gradations or degrees of introversion-extroversion.

The functions fall into two related or opposed pairs: sensation-intuition, and thinking-feeling. The dynamic aspect of the Jungian typology consists in the conception that a "leading" function has its shadow or opposite, an "inferior" function, as a less integrated component of the personality. Thus, in the thinking type, feeling responses are less well integrated and more subject to uncontrolled, unconscious forces, while the same thing is true of the intuitive reactions in the sensation type, and so forth. An example of this relationship may be seen in the big-business executive who is considered keen, cool, logical, and rationally controlled by all his associates—a thinking type—but who, in his home life, is moody, unpredictable, and a prey to uncontrolled feelings. Here thinking is the superior function, feeling the inferior.

Perhaps the most characteristic of Jung's contributions are his extensions or expansions of the Freudian concepts of the libido, the unconscious, and of the nature of symbols. We have seen that Jung was unable to conceive the most fundamental motivating force or energy as being entirely sexual. He therefore worked out a conception of the libido which embraced not only the sexual drive but nutrition, growth, and self-expression as well. The libido, in his thinking, became a most basic and general life force in men, impelling them to live, and to live the full and abundant life. It was practically the *élan vital* of Bergson.

When it came to interpreting the deeper implications of the behavior of people, both in dreams and in the waking state, Jung again felt compelled to expand the Freudian concepts of the Unconscious and of the nature and function of symbols. As might have been expected from a man so familiar with primitive mythology and folk lore, he suggested that not only do unconscious determinants of behavior and

feeling develop out of the life experiences of the individual (the personal unconscious), but all mankind share a common fund of residues of the experiences of our progenitors (the collective unconscious). This latter concept he derived from studies which seemed to show that many symbols, phantasies, myths, and other elements of mental life are common to all cultures.

The "residues" need not be conceived as mystical. Rather, we may note that the evolutionary history of the species has produced creatures with a certain common fund of biological inheritance. Human beings, then, being what they are, will all have certain functional potentialities in the very architecture of their bodies. These universal similarities lead to universal experiences shared by all, and it is this common fund of experiences which is the "collective unconscious."

The Jungian "archetypes" are universal symbols, found in one form or another at all times and among all races. They are personified representations of dramatized, universal, human roles. Thus, to Jung, symbols may have individual, personal meaning derived from the peculiarly individual aspects of the personal history of the subject (the personal unconscious). They will also have "functional," or "general dynamic," meanings derived from those aspects of personal and group history which all human beings have in common (the collective unconscious).

We may summarize the Jungian contributions to psychology as comprising (1) the development, along dynamic or depth-psychological lines, of methodological procedure and classificatory system (association method and psychological type theory), and (2) the extension of certain basic Freudian concepts (libido, unconscious, symbol). Just which of these will prove to be most significant, time and further knowledge alone will tell.

Alfred Adler (1870-1937) suffered much illness as a child. He studied medicine at the University of Vienna and at the Vienna Hospital and Policlinic. In 1898 he started private practice as a specialist in diseases of the eye. But his interest was never confined to the ailing part, and, after studying neurology for a while, he went into general practice and sought to study all forms of ailment as maladjustments of the total individual. In 1902 he joined the discussion circle of Freud and added to his own clinical studies the study of psychoanalytical theory. Like Jung, he later split with Freud over the doctrine that the sexual urge was the sole basic force in human life. In 1911 he withdrew from the Psychoanalytic Society, resigned from his editorship of the *Zentral-*

blatt für Psychoanalyse, and proceeded to develop his own line of psychological thinking which he named "Individual Psychology."

In his general medical practice he had often observed that almost any form of weakness or dissatisfaction in the life of the patient might lead to complaints attributing the patient's suffering to an inferiority or malfunction of some organ. In 1907 his *Study on the Inferiority of Organs* appeared. Here he pointed out that a maladjusted patient will show his maladjustment by a breakdown in the weakest part of his entire system. Furthermore, he saw clearly that while organ inferiority may lead to general feelings of inferiority, the reverse may also be true: a person who has come to believe himself inferior to others will often find a real or an apparent physical cause for his ineffectiveness. Moreover, Adler saw that the period of early childhood is one in which the individual really is weak and inferior to all others in some respects at least. So he postulated a Feeling of Inferiority as a basic feature of personality.

These inferiority feelings usually produce an urge to power. The individual seeks to gain power over others, to bend them to his will, either by force or by subterfuge, in order that, in experiencing mastery, he may to some extent prove to himself his own superiority and escape the misery of feeling inferior to the rest of the world.

Not all ways of coping with feelings of inferiority are unhealthy. It is possible, by a direct attack on a weakness, to develop it into a strength; or a person who is below par in one respect may compensate indirectly for inferiority feelings arising from this fact by developing a talent in some other area so that his excellence in this function throws the area of his inferiority in the shadow and the net effect is one of superiority. But attempts at compensation often lead to overcompensation, which is not a healthy state.

In childhood we learn to play certain roles in the family. We choose, or have more or less chosen for us, certain life goals. Often these goals are impossibly high or ideal—the "fictive" goals; and when in life we cannot achieve them, it is no wonder that we succumb to an active feeling of failure or of inferiority.

The pattern of life in the family, then, determines one's childhood experiences, sets one's life goals, and fixes one's style of life. At first Adler thought to find in feelings of inferiority and the consequent strivings for power and superiority the dominant motive in all human behavior. But, in later years, with more experience to draw upon, and with more thought put on the matter, he saw the problem in a broader

light. In his more recent writings he stated that we all have three major life goals or needs—physical security, sexual satisfaction, and social integration. Just what each of the three goals will mean to the individual is determined by the experiences of his early childhood, by the role he plays in the family, and by the attitudes which he observes in his parents and siblings in reference to these goals. A normal or healthy style of life is one in which the individual drives are geared into and integrated with the social interactions of the group. The need to belong, to be a well-thought-of member of the group, and, in turn, to think well of others and to love them is, if anything, more important than the need to feel superior. Inferiority feelings, rather than being normal, are symptoms of the abnormal or maladjusted individual; and Adler considers the drive to superiority unhealthy and undesirable, even though it may characterize a majority of the members of a given group.

During childhood, when the individual is longing to be a man, his attitudes towards sex and sex differences are also set. For the most part, in our society, the child sees real or apparent advantages in favor of men, who are supposed to be big, strong, dominant, and so forth. The degree to which the child himself fails to reach these ideals is a general source of inferiority feelings, not only in males, but also in females. This need not be the case, Adler suggests, for while the social values of men and women are *different* they are not *unequal*, and the right kind of family life will give each child, girl or boy, a feeling of his own worth and of the satisfactions to be derived from a vigorous performance of the functions for which he or she is particularly suited in group living.

The healthy individual, then, is one who makes a proper self-evaluation, and who seeks security and comfort in the society of those to whose security and comfort he can contribute. Thus individual needs and group needs are mutually contributory rather than mutually antagonistic. It is only when the development of the individual has been distorted that inferiority feeling outweighs social feeling and leads to that striving for power which produces unhappy people. The best life is to be found in making oneself liked and valued by helping others.

Adler's therapeutic method relies largely on logical persuasion and demonstration. The physician attempts to diagnose the "life style," to determine the life goals, and to get the patient to realize them also. The basic principles of Individual Psychology are then explained and the patient is expected to find his goals and life style changing in view

of his new self-knowledge and new ideal of life. To one with a knowledge of Freudian or Jungian psychology it would seem clear that Individual Psychology pays far too little attention to those factors in mental life beyond the bounds of consciousness. It seems clear, however, that Individual Psychology has made significant contributions to the understanding of human motivation and personality.*

William Alanson White (1870-1937) was simultaneously Professor of Nervous and Mental Diseases at the medical schools of Georgetown University and George Washington University, Lecturer in Psychiatry at the United States Naval and Army Medical School, and Superintendent of St. Elizabeth's Hospital in Washington, D. C. He edited or helped to edit the *Journal of Nervous and Mental Disease*, the *Nervous and Mental Disease Monograph Series*, the *Psychoanalytic Review*, the *International Journal of Psychoanalysis*, and *Mental Hygiene*. With an occasional collaborator he published more than 200 articles, monographs, and books. Among his more important collaborators and students were Smith Ely Jelliffe, Boris Sidis, Shepherd Ivory Franz, and Edward J. Kempf. White, more than anyone else, introduced the psychoanalytic conceptions into the psychiatric thought of the 1920's and 1930's.⁴

Criticism of the psychoanalysts. Apparently Freud was not influenced particularly by Janet, Prince, and other great contemporaries, whom we shall take up later, some of whose most significant contributions were published before Freud's first paper in psychotherapy (1892). He believed that his method offered the only cure for the psychoneurotic, and that "the depth-psychology revealed by psychoanalysis is in fact the psychology of the normal mind."⁵

At the outset, almost everyone who paid any attention to Freud's system objected to it; and many people still object to it. He explained their objections as follows: People have failed to realize that this system is based upon painstaking observations. Moreover, people resent any system which threatens their own sexual complexes and infantile self-importance. Thus, people objected violently when Copernicus

* End of contribution by Austin B. Wood.

⁴ Cf. Smith Ely Jelliffe, *Psychoan. Quar.*, 1933, 2:318-329, *Ment. Hyg.*, 1937, 21:291-293; Edward J. Kempf, *Psychoan. Rev.*, 1917, 4:127-154, and *The Autonomic Functions and the Personality*, 1921 (Nerv. Ment. Dis. Pub. Co.); Adolf Meyer, *Arch. Neurol. and Psychiat.*, 1921, 5:782-790.

⁵ Cf. Freud, *The Basic Writings of Sigmund Freud*, 1938, 573 (Modern Library); quotation adapted from *The Problem of Lay-Analyses*, 1927, 288 (Brentano).

showed that their world was not the central body but a minor planet subject to astronomical laws. They objected likewise when Darwin accounted for mankind as not a separate order but one of many species subject to biological laws. Similarly, people objected when Freud explained their supposedly free, intellectual, and even moral actions as subject to psychological laws.

In the light of the history and data yet to be surveyed, Freud's system seems at once notably picturesque, enlightening, misleading, and challenging. Its striving mental elements, upsurging libido, glimpses behind the scenes, and promise of control catch the imagination. This system, more than any other, opens our eyes to infantilisms, sexual motivation, interrelations of motives, conflict, defenses, disguises, indirect expression of motives, and the need for honesty about human nature. It emphasizes anew the law of cause-and-effect in mental life. On the other hand, its conception of the libido as something which can accumulate, go forth, return, and be redirected is metaphysical, prescientific, like Mesmer's magnetic fluid. Whether as effect or as cause of such metaphysical thinking, Freud's system confuses sex with all other pleasure, hence with sheer affection, artistic enjoyment, and what not; and it generalizes absurdly with regard to motivation, the unconscious, fixations, causes of conflict, symbolization, hypnosis, transference, family life, and social, vocational, artistic and other activities, including criticisms of the Freudian system. By the same token, as we shall see in later chapters, this system neglects many important motives and mechanisms. Finally, Freud's system has caused other workers to examine their data and their concepts, to seek further data, and, when indicated, to revise their concepts.

Jung's view has won many followers among those who are unfamiliar with the more academic dynamic and abnormal psychology and have found Freud's system unsatisfactory. Among the lay followers are many artists, musicians, and poets. Apparently a large percentage of all the followers of Jung are women.

To the student of our entire field, Jung's system seems to embody deep sympathy for all human nature, subtle psychological insights, and pageant, metaphysical poetry. The whole system is so redolent of truth that the psychologist is tempted to investigate point after point until he can extract the truth and incorporate it into scientific psychology.

Compared with Freudians and Jungians, Adlerians seem few. Most psychiatrists and psychologists, however, also many enlightened laymen, have learned important truth from Adler.

Adler's system seems less metaphysical than sensible; yet it makes too much of some observations and neglects others. Apparently, its assumed urge-to-live is not a stuff but a description. Its therapeutic approach, too, is guided not so much by presuppositions as by the individual case. These empirical features alone would place Adler's system among the more scientific views which we shall take up in the next chapter. For two reasons, however, we classify his system with Freud's and Jung's. Like Jung's, Adler's system grew out of Freud's. Moreover, Adler's system so overemphasizes "goal-seeking," "compensation," "the style of life," and "the unity of the individual" that it overlooks many of the simpler determinants, other motives, and important complexities pointed out by the more objective investigators.

Materialistic Views

"All that is is body; all that occurs is motion." Thus Hobbes formulated materialism in the ontological sense with which we are concerned. The outstanding proponents of materialism in psychological thought have been the *materialistic philosophers* from Leucippus and Democritus down, many *anatomists* and *neurologists*, and the *behaviorists*. Many materialists seem unaware that their view is ontological.

The Positivistic Approach

As seen by the philosopher Auguste Comte (1798-1857), human knowledge develops through several continuous stages, from the most primitive to what Comte called the scientific or "positive" stage.⁶ Such stages appear in the history of abnormal psychology. Following Comte's scheme essentially, in the foregoing pages we have presented *magic*, which expresses simple associations, analogies, and wishful thoughts; *animistic views*, which seek to explain phenomena by reference to souls or spirits; *theological views*, which subordinate or reduce the spirits to a few; and *ontological views*, which rely not on spirits but on abstract substances, forces, or materials, like magnetism, mind, or matter. There remain to be considered views which represent the more empirical, scientific approach called *positivism*.

The meaning of positivism. Positivism is essentially the application of Occam's Razor, the rule that "entities should not be multiplied un-

⁶ Cf. Harald Høffding, *A History of Modern Philosophy: A Sketch of the History of Philosophy from the Close of the Renaissance to Our Own Day* (Meyer, tr.), 1900, 2:331 ff. (Macmillan).

necessarily."⁷ This means that explanatory conceptions like "magical potency," "the ghost soul," "bedevilment," "animal magnetism," "odylic force," "animal spirits," "the libido," "the will to power," "the instinct of self-preservation," "mind," "matter," even "energy," "forces," and "principles of nature," should not be used when we can get along without them; any unnecessary conceptions must hinder us from finding truth.

Despite its name, positivism is not dogmatic. Positivism does not attempt to know the inner natures or stuffs of things; it attempts to know only what happens and how it happens. In other words, positivism seeks to accumulate knowledge with minimal assumption and to formulate it with maximal economy. Thus positivism aspires not to picturesque systems but to well-ordered knowledge, knowledge of facts comprehended in their logical-mathematical relationships.

In most instances, positivism is an ideal rather than an actuality. As Comte said, every science that has reached the positive stage carries marks of its own earlier stages. The investigators whom we take to represent the positivistic approach do not differ completely from those of the other groups cited; many representatives of the other groups have observed usefully and generalized suggestively, and positivists have failed to think always in the most economical terms. Nevertheless, it seems possible to characterize a number of views roughly as positivistic.

Hippocrates a forerunner (c. 400 B.C.). "The Father of Medicine" seems to have been at once somewhat theological, somewhat ontological, and largely positivistic in outlook. He taught that hysteria comes from a restless uterus (Greek *hystera*); but he held that all mental disorders have natural causes and are related to the brain.⁸

Pioneers of psychiatry. When the Church came to dominate European thought, Hippocrates's naturalistic understanding of mental disorders was forgotten. For centuries, as we have seen, mental disorders were not merely little understood but were cruelly misunderstood. Some insane persons were kept at home or, occasionally, in a

⁷ William of Occam or Okham, "the Invincible Doctor" (died c. 1349).

⁸ Cf. Charles Greene Cumston, *An Introduction to the History of Medicine from the Time of the Pharaohs to the End of the XVIIIth Century*, 1927, 87-103 (Knopf); James V. May, *Mental Diseases: A Public Health Problem*, 1922, 139-140, 475 (Badger); J. R. Whitwell, op. cit., 62-66; Hippocrates (Littre, tr.), *Œuvres complètes d'Hippocrate*, 1839-1861, 6:387-391, 8:33-35, and passim (Baillière, Paris).

religious institution. The rest either wandered at large or were shut up in filthy dens, where ignorant or criminal keepers chained them, abused them at will, and perhaps exhibited them to the public for a fee.

Eventually, a few physicians rose above their doctrinal milieu and studied mental disorders open-mindedly. We should say that each of these physicians was, in part at least, a psychiatrist.

Johannes Weyer (or *Ioannes Wierus*) (1515?-1588) has been called "the founder of modern psychiatry." He was personal physician to a duke in what is now Rhenish Prussia. Weyer was pious, studious, and courageous. He held that "truth may be sought wherever it can be found"; and he followed his own injunction to "love your fellow beings, destroy errors, fight for the truth without any cruelty."

Weyer blamed the Devil not for witches but for the belief in witches. This belief and the practices that went with it he considered a disgrace to Christianity. Ecclesiastics who used exorcisms he called "ecclesiastic magicians." "Confessions" obtained by torture, he pointed out, were valueless. He urged the authorities to leave off torturing and killing the "poor little women" and other victims and to turn them over to physicians. Some of the "witches," he observed, were addicted to drugs. Many victims and all their persecutors suffered from "crazy imagination" or intellectual darkness or both. He explained various "miracles," lycanthropy, the common besetments by "incubi" and "succubi," and mental epidemics in naturalistic terms. He said that emotions or other special conditions make the imagination "feign the presence of images without the senses being directly stimulated." Consequently, the testimony of persons thus disturbed is unsound.

For the most part, as Binz said, "Weyer was talking like a rational human being to the inmates of a gigantic insane asylum and with the same success." Most churchmen, jurists, and even physicians considered him an agent of the Devil. His book was placed on the *Index Librorum Prohibitorum*; nevertheless, it went through many editions, editions which included letters of congratulation from some liberal churchmen.⁹

Charles Le Pois (or *Carolus Piso*) (1564-1633) was physician to Henry II of France, and when Henry founded the Faculty of Medicine at Pont-à-Mousson, Le Pois was made dean and first professor.

Apparently Le Pois was the first to insist that the mental disorder called hysteria comes not from the uterus, and not from organic disease,

⁹ Gregory Zilboorg, *The Medicine Man and the Witch During the Renaissance*, 1935, 109-187 (the quotation from Binz)-205 (Johns Hopkins).

but from any perturbation that throws out of balance the normal brain connections with the rest of the body. He pointed out that hysteria occurs not only in women with menstrual difficulties, but also in women who menstruate normally, in little girls, in women past the menopause, and in boys and men. He described hysterical contractures, tremors, convulsions, salivation, paralyses, suffocation, aphonia, cutaneous anesthesia, deafness, blindness, and loss of consciousness; and he interpreted these phenomena as effects of the central disturbance resulting from the original perturbation. He explained the central disturbance through serum, brain membranes, the animal fluid, its vessels, and the calendar, including the phases of the moon; but apart from these details, his view that the particular symptoms derive from excessive influence upon the brain or upon other parts, also from failures of connection between the brain and other parts, clearly anticipates modern views of disintegration.¹⁰

Le Pois profoundly influenced the anatomist and savant Willis, who in turn influenced Sydenham.

Thomas Sydenham (1624-1689), "noble, modest, and sincere," shared his medical views and often collaborated in practice with the philosopher-physician John Locke. He was also a friend of the great chemist and physicist Robert Boyle, who was considered the successor to Francis Bacon. Like Locke and Boyle, Sydenham sought to avoid dogma and undue theory, to observe closely, to analyze complex problems into simpler elements when possible, and to state conclusions clearly, for the benefit of mankind. Sydenham enjoyed a wide reputation as a practitioner; he did some private teaching; and he published important treatises. His influence was so great that he has been called "the English Hippocrates."

Sydenham, like Le Pois, distinguished clearly between mental disorders with an organic base and mental disorders which we now call psychoneurotic. In the latter group he included hysteria and hypochondria, a disorder associated with morbid introspection. He supposed that all the symptoms of hysteria, and most of those of hypochondria, result from too much "nerve fluid" flowing to some parts, and too little to others.¹¹

¹⁰ Cumston, op. cit., 298-302; Carolo Pisone (i.e., Carolus Piso), *Selectiorum observationum et consiliorum de praetervisis hactenus morbis affectibusque*, etc., 1618, 105-111, 122 ff., 134, 143 (Ponte ad Monticulum).

¹¹ Dict. Nat. Biog.; Encycl. Brit.; H. R. Fox Bourne, *The Life of John Locke*, 1876, passim (Harper); William Cullen, *Clinical Lectures Delivered in the Years 1765 and 1766, Taken in Short-Hand by a Gentleman Who Attended*, 1797, 59 (London); Joseph Frank Payne, *Thomas Sydenham*, 1900, 143 and passim (Unwin).

William Cullen (1710-1790), a professor of medicine at Edinburgh, made Locke's philosophy his starting point, and regarded Sydenham as "the first modern." In his clinical lectures delivered in 1765-1766, his first main lecture was "On Nervous Disorders, and the Nervous System." He conceived the neuro-muscular system mechanistically, on an "impression-contraction" basis. Together with other leading physicians of his time,¹² Cullen recognized hysteria and hypochondria in both men and women and showed that there is no clear line between hysteria and hypochondria. Cullen considered these disorders "nervous disorders" because they affect the nervous system, are "transitory, create various fluctuating feelings, and seem not to depend upon any organic affection of the parts." He remarked "the great power of the imagination" in these disorders; and he said the physician should seek to remove the hysterical paroxysm when present and to prevent its return, because, "independent of immediate dangers, it considerably affects the constitution, giving a habit and a foundation for a repetition of the fits."

As should be expected, Cullen had various naïve ideas of the mechanisms of hysteria and hypochondria, of the physical types most subject to them, and of medication. Deservedly, however, he became widely known for his great regard for truth, his clear perception, and his sound judgment. Cullen greatly influenced Rush, Chiarugi, and Pinel, among others.¹³

Benjamin Rush (1745-1813), "the Sydenham of America," was born near Philadelphia. He became a student and friend of Cullen's in Edinburgh. Rush was one of the signers of the Declaration of Independence and led various political and social reforms in the United States. He was a professor of medicine at the University of Pennsylvania and did much to make Philadelphia the medical center for the new nation. Rush's enthusiasm for special methods (particularly bleeding) misled him seriously in general medicine, but he urged scientific study and humane treatment of mental patients, and he anticipated some modern interpretations. In the 1780's and 1790's he greatly improved conditions for the insane at the Pennsylvania Hospital.

¹² Robert Whytt, *Observations on the Nature, Causes, and Cure of Those Disorders Which Have Been Commonly Called Nervous, Hypochondriac, or Hysterical*, Second Edition, Corrected, 1765, 104-107 (Edinburgh).

¹³ Dict. Nat. Biog.; William Cullen, *Clinical Lectures*, 1797, 7, 8 ff., 11-15, 38, 254, 264, 39, 61, 62, etc. (London). In Cummington, Mass., Dr. Peter Bryant, hoping his son would become a physician, named him after Cullen (Andrew James Symington, *William Cullen Bryant*, 1880, 18-19; Harper).

In Rush's view, "the seat of madness has been discovered to be in the blood vessels of the brain." Intense political contests, and "many new and fortuitous modes of suddenly acquiring and losing property, predispose to many diseases of the mind." He applied the term "dissociation" to a state marked by "unrelated perceptions, or ideas, from the inability of the mind to perform the operations of judgment and reason. Ideas collected together without order frequently constitute a paroxysm of the disease. Dissociation consists in a mobility of the nervous and muscular systems."

"Dreams," he said, "are nothing but incoherent ideas occasioned by partial or imperfect sleep." Essentially, "Dreaming is a transient paroxysm of delirium. Somnambulism is nothing but a higher grade of the same disease. It is a transient paroxysm of madness." Moreover, as Hartley had said, exceedingly absent-minded persons "somewhat resemble the persons who walk and talk in their sleep."

Rush described and named "different species of phobia and mania," used suggestion and persuasion along with medical treatments, and published various observations in abnormal psychology which were cited by later writers.¹⁴

Vincenzo Chiarugi (1759-1820) made asylums more humane in Tuscany in 1789. He maintained that "we must respect the physical and moral person of the mentally deranged." Also in 1789 he published a manual since described as "a monument of wisdom in the treatment of the insane." During the latter part of his life Chiarugi was a professor of medicine in Venice. He was a master clinician and in some of his conceptions of mental disorders anticipated the modern authority Kraepelin.¹⁵

Philippe Pinel (1745-1826) translated Cullen's works into French and seems to have read every medical liberal who preceded him. When appointed physician of the Bicêtre (a hospital) in Paris in 1793, Pinel undertook to eliminate the chains, the filth, and all the other brutalities to which the insane patients were subject. He introduced a regular schedule, considerate but firm management, occupational therapy, and

¹⁴ Appleton's *Encycl. Am. Biog.*; adaptations from Benjamin Rush, *Medical Inquiries and Observations*, 1805, 4:395, 385-386, 2:16 (Conrad), *Medical Inquiries and Observations upon the Diseases of the Mind*, 1812, 259-262, 303-304, and passim (Kimber and Richardson); Jay Wharton Fay, *American Psychology Before William James*, 1939, 70-72 (Rutgers Univ. Press); Richard H. Shryock, *Am. J. Psychiat.*, 1945, 101:429-432; Adolf Meyer, *ibid.*, 433-442.

¹⁵ *Profilo Bio-bibliografico dei Medici e Naturalisti Italiani dal Sec. XV al Sec. XVII*, 1928 (Rome).

moral influence. In 1795 he was put in charge of the Salpêtrière, which he reformed similarly.

Like Rush and Chiarugi, Pinel published works which are noteworthy in the development of modern psychiatry. He sought physiological foundations, but he avoided materialism because he considered it dogmatic metaphysics. He greatly advanced the classification of mental disorders; he recognized heredity, stresses, and uncontrolled living as causes of these disorders; he held thoroughly modern ideals of medical education; and as a member of the Faculty of Medicine at the University of Paris he influenced many students, particularly his successor there, Jean-Etienne-Dominique Esquirol (1772-1840).¹⁶

Rush's, Chiarugi's, and Pinel's reforms of asylums were paralleled in England by William Tuke, a Quaker merchant, who developed the York Retreat between 1792 and 1796. Notwithstanding these reforms, most of the insane in Europe and America continued to suffer cruelly until after the work of Esquirol, Jules Morel, Edward Parker Charlesworth, Gardiner Hill, John Conolly, Dorothea Lynde Dix, Wilhelm Griesinger, and others of about 1840.¹⁷

John Hughlings Jackson (1835-1911) practiced medicine and lectured in London. He was primarily a neurologist. Jackson adopted a view which had been enunciated in 1841 by Laycock, afterwards professor of medicine at Edinburgh, that the brain, like the rest of the nervous system, is subject to the laws of reflex action. He accepted also Herbert Spencer's philosophy of evolution as applied to the nervous system. From such starting points and from his own observations of epilepsy and other disorders, Jackson concluded that when the nervous system breaks down it ordinarily goes through stages which reverse its evolutionary history. The highest, least automatized, arcs give way first; the lower and better established arcs give way later, if at all. Furthermore, as the higher functions lapse, symptoms emerge which reflect both the absence of the higher processes and the now uninhibited activity of the lower processes. For example, injuries in the higher levels enhance the knee jerk and increase emotionality. The functioning of the normal nervous system appears thus as an integration of functions of various levels, with the highest levels predominant.

¹⁶ References in "Philippe Pinel," *Encycl. Soc. Sci.*; Raymond de Saussure, *Ciba Symposia*, 1950, 11:1222 ff.

¹⁷ *Dict. Nat. Biog.*; Helen E. Marshall, *Dorothea Dix*, 1937 (Chapel Hill); Arthur Hiler Ruggles, *Mental Health*, 1934, passim (Williams and Wilkins); James V. May, *Mental Diseases*, 1922, 47-48 (Badger); Gardner Murphy, *An Historical Introduction to Modern Psychology*, 1930, 136-137 (Harcourt).

Jackson's view influenced Sherrington, Head, Ribot, McDougall, Meyer, and many other students of the nervous system and mental life.¹⁸

Emil Kraepelin (1856-1926), besides following the usual medical course, studied psychology in Wundt's laboratory at Leipzig and became the first psychiatric experimentalist. He was professor of psychiatry successively at Dorpat, at Heidelberg, and at Munich; he founded an institute for psychiatric research; and he founded the *Psychologische Arbeiten*, of which the first paper, by Kraepelin himself, was entitled "Der psychologische Versuch in der Psychiatrie." Kraepelin emphasized controlled observation and experiment, mental measurement, objective record, statistical norms, recognition of individual capacities, and relation of the abnormal to the normal. He experimented particularly upon the mental effects of fatigue and of various drugs. Kraepelin introduced also a greatly improved classification of mental disorders, a classification which more recent psychiatrists have modified but little. Thus Kraepelin contributed immensely to modern psychiatry, especially upon its experimental and diagnostic sides, and opened the way for much development of abnormal psychology.¹⁹

Other pioneers, whose interests set them somewhat apart from the foregoing psychiatrists, we shall consider in the sections that follow.

The rise of scientific hypnotism. As early as 1814, the Portuguese abbot *José Custodio de Faria* (c. 1755-1819) maintained in Paris that the mesmeric phenomena resulted not from magnetic fluid but from the patient's own receptive attitude.

In 1841, a Manchester physician, *James Braid* (1795-1860), witnessed a mesmeric *séance* and denounced it as a complete fraud. He was induced to make a medical examination of the mesmerized subject, however, and concluded that the phenomena were genuine. He experimented upon his family and friends and perceived that some explanation other than "magnetism" was needed. This explanation he found first in fatigue, later in monoidism. Braid originated the terms "hypnotize," "hypnotism," "hypnotic," and "hypnotist" (from the Greek *hypnos*, sleep); and he studied carefully the technique and the phenomena of hypnotism.

¹⁸ Max Levin, *Arch. Neurol. and Psychiat.*, 1933, 30:848-874; John Hughlings Jackson, *Selected Writings* (James Taylor, ed.), 1931 (Hodder).

¹⁹ Hollingworth, *op. cit.*, 51-65; *Encycl. Soc. Sci.*; Adolf Meyer, *Am. J. Psychiat.*, 1927, 6:749-755.

Of Braid, Boring says: "On the one side, the medical profession looked askance; on the other, the mesmerists disowned him. Nevertheless, he kept calmly on, experimenting and writing, seeking always to give scientific meaning to his findings, and thus narrowing the gulf between himself and medicine. He was not branded as a mesmerist because his earlier theory fitted in with conservative physiological belief, and because he presented it as an attack upon mesmerism. It is also probable that the new theory could be more readily tolerated since it did not magnify the theorist as a man possessed of peculiar power over his fellowmen.²⁰ In England, however, Braid's theory was little more than tolerated, and was soon forgotten. In France and in Germany his writings were translated and read and had considerable influence.²¹

Another influential investigator was *Charles Richet* (1850-1935), professor of physiology at Paris. Richet announced in 1875 that mesmeric phenomena are real and that the state itself is essentially a provoked somnambulism.²³

Since Richet's time the literature of hypnotism has been vast. Practically all of the investigators about to be mentioned have worked with it, and authoritative books on hypnotism have been written, especially by *Albert Moll* (1862- ?) of Berlin (1889) and *J. Milne Bramwell* (1852-1927) of London (1903). Both of these men were physicians. More recently, *Clark L. Hull* (1884-), professor of psychology in Yale University, published *Hypnosis and Suggestibility—An Experimental Approach* (1933).²²

The Paris or Salpêtrière school. *Jean-Martin Charcot* (1825-1893) taught diseases of the nervous system at the University of Paris and directed a neurological clinic at the Salpêtrière. By 1878 Charcot had accepted a doctrine then current that "artificial somnambulism" (hypnosis) is an artificial hysteria induced in poorly organized subjects; and he undertook to discover the precise symptoms of this somnambulism and of hysteria. Charcot's methods of research were primitive. He used magnets; according to Janet, each of his patients was hypnotized for him by someone else; and he failed to compare his patients with normal persons who did not know the "stages of magnetic sleep" and "symptoms of hysteria" then in vogue. Thus he failed to allow for

²⁰ Adapted from Edwin G. Boring, *A History of Experimental Psychology*, 1950, 125, 127 (Appleton-Century-Crofts).

²¹ Bramwell, *op. cit.*, 21-29.

²² (Appleton-Century.)

suggestion as a cause of the "stages" and "symptoms" which he thought he had discovered. Nevertheless, Charcot pointed out that many hysterical phenomena seemed to result from persistent ideas within the individual patients; and he demonstrated that both psychoneurotic and hypnotic phenomena are important and can be studied. His clinic was visited by physicians from many countries, and greatly stimulated scientific study of the psychoneuroses and of hypnosis.²³

Charcot's work was carried on particularly by *Pierre Janet* (1859-1947), a physician and professor of psychology at the Collège de France. Like Charcot, Janet recognized individual differences in mental organization, particularly in power of holding together so as not to become dissociated. Janet called this power "synthesis" or "tension." The psychoneurotic individual, he observed, is deficient in such synthesis. For example, the psychoneurotic individual shows this or that contracture, paralysis, or compulsion which he cannot control. If by suggestion the aberrant function is brought back under his control, some other function breaks off, producing a new symptom; much as a woman carrying too many packages is continually dropping one and no sooner grasps that one than she drops another. For Janet, the hypnotizable person likewise is deficient in synthesis; from which Janet concluded (mistakenly, many feel) that only abnormal persons can be hypnotized. Unlike Charcot, however, Janet understood the alleged "stages" of hypnosis and the "diagnostic symptoms" of hysteria to be themselves products of suggestion. Moreover, he avoided all "magnetic" conceptions. He related the patient's synthesis to his physiological "energy."

Janet demonstrated richly the role of ideas in psychoneuroses. He showed that many psychoneurotic patients suffer from "traumatic memories"—memories of shocks, temptations, moral conflicts—which persist as "subconscious fixed ideas," or even as "psychological systems" of ideas, with their related acts and emotions. The psychoneurotic contractures, paralyzes, compulsions, and other aberrations express the subconscious ideas. The aberrations are involuntary, he explained, because the ideas and suggestions are subconscious: through "psychological disaggregation" the traumatic memories with their related acts and emotions "have escaped from the control of the personality." He explained further that the traumatic memories persist subconsciously as obstacles which these patients have not been able to get beyond, or as difficult situations which "they have not succeeded in liquidating."

Not all of these patients can be cured, according to Janet: some are

too weak from heredity, or from disease, or from the stresses themselves. Many patients, however, can be cured or, at any rate, helped. For such patients, it is usually necessary first to discover the pathogenic factors. These factors can be learned sometimes from the patient's acquaintances, but more often from the patient himself, through direct conversation, hypnosis (1886), automatic writing (writing which occurs separately from the subject's dominant consciousness) (1886), examination of his dreams (1892), or some combination of these, together with observation of his symptoms. Some patients can be cured then by getting them to tell all about their original difficulties (1889-1892). Some young hystericals can be cured by suggestion. Many patients with traumatic memories, however, need to have the memories modified in various ways, through "moral disinfection," breaking up the fixed ideas, "setting the memories in order," or "rememorization," so that the patient can assimilate or adapt to the originally traumatic experiences (1889). The patient can so adapt, Janet said, only when all his movements and tendencies to movement connected with the traumatic experiences are finally stopped. Often, too, it is necessary to simplify the patient's environment; to teach him to save his energy for necessary decisions, action, and synthesis; and to have him develop habits of initiative, effective action, and sound synthesis.

Janet studied hundreds of cases and greatly increased our knowledge of the psychoneuroses.²³

The Nancy group. Some eighteen years before Charcot began to study "somnambulism," a country doctor from Nancy, *Ambroise-Auguste Liébeault* (1823-1904) visited a meeting of the French Academy of Science and heard an account of Braid's work. Liébeault had done some mesmerizing as a medical student and may have been influenced by followers of Faria. Braid's view reawakened Liébeault's interest and led him to apply hypnosis to his peasant-patients. He found the method successful with many, and he continued to use it. While Charcot and others were insisting that only weak individuals could be hypnotized, and that recovered patients were not hypnotizable, Liébeault was hypnotizing easily, though not always deeply, nearly all of his patients *except* the nervous and hysterical ones. He soon concluded that the essence of hypnosis is suggestion, and that neither suggestion nor hypnosis is pathological.

Liébeault published his results in 1866, but only one copy of his book was sold. He worked on for almost twenty years more, disregarded or

derided by other physicians. Finally, a professor, *Hippolyte-Marie Bernheim* (1840-1919), of the medical school at Nancy, sent him a sciatica patient whom Bernheim himself had failed to cure. To Bernheim's surprise, Liébeault cured the patient by hypnotic suggestion. Bernheim promptly studied Liébeault's methods. He performed many experiments, and, in 1884, he published an effective presentation of Liébeault's work and of his own development of it. Bernheim, like Liébeault, interpreted hypnosis as suggestion and not pathological.²³

This "normal" view of hypnosis is the great difference between the Nancy group and the Paris school. McDougall thought that the two views came from the groups' different hypnotic techniques.²⁴ We wonder whether the different hypnotic techniques came from the different views of hypnosis. However that may be, we know that the Salpêtrière physicians hypnotized by domineering or startling methods, and that most of their patients were underprivileged, undernourished, broken-spirited persons. We should expect such methods to succeed with any such person at first and to fail when the same person became accustomed to the situation and grew strong enough to resent the methods. Bernheim, on the contrary, first explained to the patient what was to be done, then enlisted his attention and suggested verbally that he go to sleep. Such cooperative technique is usual in hypnosis today and is successful with countless individuals who seem wholly sound.

The controversy between the Paris and the Nancy groups has been important both for practice and for theory. On the practical side, medical men became divided about the use of hypnotism. As a leading British physician wrote: "Of the considerable number of medical men I have met who have attended Charcot's demonstrations, not one has looked upon hypnotism as more than a toy, and not one has adopted it for the treatment of disease; whereas all those I have met who have studied the subject at the clinics at Nancy have been thoroughly convinced of the value of the treatment, and have adopted it into their practice."²⁵

On the theoretical side, to quote Boring, "interest was again quick-

²³ Cf. Goldsmith, op. cit., 283-285; PA 1 1242; Pierre Janet, *Psychological Healings*, 1925, passim (Macmillan); Morton Prince, *Clinical and Experimental Studies in Personality* (A. A. Roback, ed.), 1929, 532-538, or 1939, 616-623 (Sci-Art); W. S. Taylor, *Am. J. Psychol.*, 1947, 60:637-645; L. Schwartz, *Die Neurosen und die dynamische Psychologie von Pierre Janet*, 1951 (Martinus Nijhoff, The Hague). For Janet, the analogy of the packages was suggested by Freud, *Am. J. Psychol.*, 1910, 21:191.

²⁴ William McDougall, *Outline of Abnormal Psychology*, 1926, 84 (Scribner).

²⁵ Adapted from C. Lloyd Tuckey, *Treatment by Hypnotism and Suggestion, or Psychotherapeutics*, 1907, 64-65 (Putnam).

ened by controversy, but this time the controversy did not turn upon the 'genuineness' of hypnosis. Hypnosis was accepted as a fact, and the dispute was concerned with its nature. The verdict of time has favored the Nancy school, but the controversy was fortunate, for it dismissed forever the suspicion that hypnosis was not a proper subject for scientific inquiry."²⁶

Psychologists in the nineteenth century. This classification is logical rather than historical, since some of the men we place here would never have thought of themselves as psychologists. All of them except Ribot and Gurney had medical degrees. They all contributed particularly, however, to abnormal psychology as we have defined it.

Robert Macnish (1802-1837), a Glasgow physician and writer, published in 1830 a very readable little book called *The Philosophy of Sleep*. The book described dreams, their origins in experience, in sensory stimulation, in affective states, in wishes, and in the sleeper's disorganization; the recall of early memories in dreams, and in deliria; sleep-talking; somnambulism; waking preoccupation; and multiple personality. Macnish's pages have yielded source material for many publications, from his day down to the Robinsons' *Readings in General Psychology*.²⁷

Much abnormal psychology was formulated in the 1880's. **Théodule-Armand Ribot** (1839-1916), then Professor of Psychology at the Sorbonne, published three small volumes, *Les Maladies de la mémoire* (1881), *Les Maladies de la volonté* (1883), and *Les Maladies de la personnalité* (1885). In these books Ribot brought together much that had been observed by Rush, Macnish, Braid, Charcot, and many others. He also portrayed personality as a coordination, and abnormalities as discoordinations, of neurological processes.

In this same period, as we have seen, **Bernheim** of the Nancy group made his first contribution to the literature of hypnosis and suggestion (1884). **Janet** of the Paris school also brought out his first paper concerned with subconscious ideation and subconsciously motivated acts and symptoms (1886).

Edmund Gurney (1847-1888), a British psychologist, reported on subconscious calculation (1887). Gurney hypnotized a man and suggested a mathematical problem to him, then woke him suddenly and

²⁶ Adapted from Boring, op. cit., 130.

²⁷ Dict. Nat. Biog.; Edward S. Robinson and Florence Richardson-Robinson, 1929 (Univ. of Chicago Press).

engaged his attention with something else. The awakened subject wrote automatically the answer to the problem without realizing that he was writing it or even that a problem had been suggested to him.²⁸

Alfred Binet (1857-1911), Director of the Laboratory of Physiological Psychology at the Sorbonne, is best known for his tests of intelligence, but he published important papers on alterations of personality (1889), which came out later in a book under that title. Binet drew upon the literature from Macnish on and added many observations of his own to give a rich description of hysterical and hypnotic phenomena. He set forth anesthetics, automatic writing, other subconscious actions, somnambulisms, multiple personalities, and the relations of these phenomena to normal psychology. He concluded, after Ribot, that the ego "is a group of internal events, very numerous and very varied, and that the unity of our psychical being should not be sought elsewhere than in the arrangement, the synthesis—in a word, the co-ordination—of all these incidents."²⁹

Contemporaneously with Binet's papers, *Moll's* book on *Hypnotism* appeared (1889), as previously noted.

In the same year also, *William James* (1842-1910) of Harvard University published "Notes on Automatic Writing" (1889). In this paper James started with an observation of Janet's that automatic writing in a hysterical subject expressed the sensations and memories of which that subject's "usual intelligence, expressing itself by word of mouth, was ignorant." He went on to show that automatic writing occurs likewise in some normal subjects. He showed also, as Janet and others had done, that the hand that does the writing can be anesthetic, yet that pricks on that hand are recorded subconsciously and can be reported later through automatic writing. James concluded that such "dissociation of the consciousness into mutually exclusive parts is destined, when understood, to cast a light into the abysses of Psychology."²⁹

More recent leaders. Also in the late 1880's *Morton Prince* (1854-1929) began his researches in abnormal psychology. He contributed to this field for forty years. As a graduate student in medicine, Prince had become acquainted with Charcot and Janet at Paris, and with Liébeault and Bernheim at Nancy. After some years of practice he was Instructor in Neurology at Harvard Medical School (1895-1898);

²⁸ Prince, loc. cit.

²⁹ Adapted from William James, *Proc. Am. Soc. Psychical Res.*, 1885-1889, 1:549-551.

Professor of Neurology, teaching abnormal and dynamic psychology, at Tufts College Medical School (1902-1912); and Associate Professor of Abnormal and Dynamic Psychology at Harvard University (1926-1928). He published six books, several collaborations, and more than a hundred articles and monographs on various political, philosophical, medical and psychological subjects, for the most part in neurology and abnormal psychology. He also founded the *Journal of Abnormal Psychology* (1906), which later became the *Journal of Abnormal and Social Psychology*, and edited it throughout the rest of his life. Ontologically, Prince was a panpsychist or mentalist; but this doctrine does not seem to have interfered with his empirical investigation, continued learning from other investigators (including Freud), and psychological formulation. He loved activity and contest, yet he maintained a fine sportsmanship and personal detachment, and always disclaimed finality for his own system.

Prince verified previous workers' observations of psychoneuroses, automatic writing, and hypnotic phenomena, and added many important observations of his own. He was concerned especially with causes and mechanisms, many of which he traced and reproduced experimentally. He studied the dynamics of dreams, hallucinations, obsessions, personality, and psychotherapy. He showed how the most striking functional abnormalities could be conceived neuropsychologically, sometimes as simple habits, sometimes as conflicting patterns in the personality, and sometimes as dissociated systems or even personalities, but always as resultants of varied motivation in a complex environment. Especially important in his view was the psychology of meaning. He pointed out that things acquire meanings according to individual experience; and when these meanings become so disturbing as to make for disruption of personality, the psychotherapist must see that the meanings become changed, by analytic re-education, to dissolve the conflicts and reintegrate the personality as a dynamic whole. Thus Prince developed a psychology of the abnormal which, however unfinished, largely integrates the abnormal field with neurology and general psychology.³⁰

Austen Fox Riggs (1876-1940) developed a sanitarium for psychogenic disorders at Stockbridge, Massachusetts. He also was the consulting psychiatrist at several hospitals and educational institutions, lectured at Vassar College, and was Clinical Professor of Neurology in

³⁰ W. S. Taylor, *Morton Prince and Abnormal Psychology*, 1928 (Appleton).

Columbia University. He was an unassuming but instructive lecturer. His patients and his students became his advocates. He published only fifteen psychiatric papers, besides three excellent books for the lay reader; but what he did publish was influential. Between 1913 and 1940, some thirty psychiatrists went to Stockbridge, either as observers or as associates of Riggs, and learned much from him there.

Riggs was especially influenced by William James. Riggs's own view was evolutionary, deterministic, and constructive. He assumed that all the various physiological and psychological functions are naturalistic and constitute an organized whole, a whole which often persists despite some structural or functional disintegration within the organism. Within this whole, he recognized reflex, affective, intellectual, and idealistic or ethical levels of functioning; individual differences, native and acquired; various individual and social problems of development and daily living; suggestions, fixations, conflicts, and repressions; physical and mental causes of disorders; and physical and mental methods of adjustment, including medication, work, play, exercise, rest, and systematic analysis and re-education toward wise self-direction.³¹

Adolf Meyer (1866-1950) was born in Switzerland and was educated at various European universities. He drew inspiration from many sources, among them Peirce, James, and Dewey. For thirty years Meyer was Professor of Psychiatry in Johns Hopkins University and Psychiatrist-in-Chief at the Phipps Psychiatric Clinic of the Johns Hopkins Hospital. His professional life outspanned that of Riggs. He published nearly 200 papers, reviews, and forewords on many aspects of psychiatry. Among the physicians he had trained by 1937 were 100 teachers of psychiatry, 11 of them in foreign countries. Altogether, through his teaching, publications, and professional contacts, his influence was widespread.

Meyer's first rule was "to use the plain man's good sense and to go at things for what they are worth, with as little preconceived notion as possible." This rule called for "the surrender of absolute quantities and absolute effects for relative or conditioned quantities and effects, not independent entities but parts of balancing processes."

³¹ Charles H. Kimberley, unpublished biographical and bibliographical data, including a paper read before the American Psychopathological Association in 1942; Miriam C. Gould, memories communicated; Horace K. Richardson, *Am. J. Psychiat.*, 1933, 13:45-56; Austen Fox Riggs and Horace K. Richardson, *Annals of Internal Med.*, 1936, 10:13-24; Stanley Cobb, *Arch. of Internal Med.*, 1940, 66:1346-1347; Riggs, *Am. J. Psychiat.*, 1923, 3:91-110; Riggs and William B. Terhune, *Am. J. Psychiat.*, 1925, 4:407-417; Riggs, *Just Nerves*, 1922 (Houghton Mifflin), *Intelligent Living*, 1929 (Doubleday), *Play*, 1935 (Doubleday).

Meyer drew from a wealth of observations, conferences, and published sources. In formulation, he held less closely than Riggs to the language of the plain man; nevertheless, for Meyer a disordered mental trend was "a genuine but faulty attempt to meet situations, an attempt worthy of being analyzed as we would analyze the blunderings of a distracted pupil, or the panic of a frightened person, or the bungling of one who reacts poorly in trying to meet an unusual situation." In any such analysis, he said, we should profit by "our experience with mental efforts to get square with things and with one's self in states of dream or under dominant preoccupations, in states akin to hypnotic dissociations or a faulty development of interests and inadequacy of habits." Throughout, we should take account of all the difficulties and not sacrifice them to simplicity in either diagnosis or therapy.

No less than Riggs, Meyer taught the continuity of psychology with natural science in what he called *psychobiology*. For Meyer, the task of natural science was "unbiased systemization of experience." "*Our concern is with the events or 'doings,' not with the being or final essence.*" This meant that "we must eliminate as fruitless the term metaphysics," but not the rules of our mental functioning. It meant also "condensation in terms of a sound objective psychobiology rather than of 'something else' such as neurologizing or other tautologies."

"The question why mind is mind, and just what it is, can be as little answered as what gold is, and *why* it is and *why* it should be so. The impossibility of getting an answer to the puzzle, what makes man man, and what the relation is between the underlying physical constellations and the 'result,' is only part of the problem of why the world is organized as it is. Our inability to answer that does not imply that we are any the worse off in regard to man than with other facts of quality that we accept without puzzle, satisfied if we can determine the *conditions* of their occurrence."

Meyer also urged the "*solidarity of mental hygiene and ethics.*" "May this be made possible," he said, "through a sane accumulation and utilization of facts and a gradual evolution of helps making for unification of biological and ethical views."

In application, Meyer emphasized the fullest possible understanding of the whole individual, his situations, his life.³²

³² Cf. Adolf Meyer, *Psychol. Bull.*, 1907, 4:171-174, 177-179, *J. Abn. Psychol.*, 1912, 7:316, 317, 324, from which, together with letters of July, 1942, the quotations are adapted; Meyer, *J. Am. Med. Assn.*, 1915, 65:860; Arthur F. Bentley, *J. Philos.*, 1939, 36:315-316; Bibliography of Adolf Meyer (typed at the Johns Hopkins Hospital);

Points of view at present. Many others have contributed to abnormal psychology, but from here on their essential work, together with much from the foregoing writers, should come in not as history but as substance.

Abnormal psychology today shares all the limitations of general psychology—often wrong assumption, imperfect definition, erroneous method, incomplete data, and inadequate presentation of results. Furthermore, in many instances, the foundations of abnormal psychology in dynamic psychology, in general psychology, and in other sciences are undeveloped; the phenomena are confusing; and experimental tests are difficult or unavailable. At the same time, the values in health and happiness at stake are pressing. For all these reasons the field of abnormal psychology is peculiarly liable to cultish controversies.

Nevertheless, as in general psychology, there is probably much more underlying agreement than appears to the journalistic observer. Debate occurs most naturally on the points upon which individuals disagree, and the most noisy debaters are often those who hold extreme positions. Between debates and debaters, the majority of psychologists go on investigating, learning, and comparing notes. Also, there is often more agreement over facts than over theory, and more agreement over theory than over the language in which it is expressed. Much abnormal psychology is expressed today in associationistic terms; much in Freudian or other "psychoanalytic" terms; much in the language of behaviorism; much in terms of biological adjustment; and much in the language of Gestalt psychology.

The language of this book will not be limited to any one of the modes just mentioned but will reflect the theoretical position outlined in the next chapter.

C. Macfie Campbell, *Destiny and Disease in Mental Disorders*, 1935 (Norton); Oskar Diethelm, *Treatment in Psychiatry*, 1950 (C. C. Thomas); Leo Kanner, *Child Psychiatry*, 1937 (C. C. Thomas); Wendell Muncie, *Psychobiology and Psychology*, 1939 (Mosby); PA 16 3862, 23 1569.

More fully stated, Meyer's "psychobiology" is "a return from a scrupulous consideration of the orthodox parallelism to the psychobiological-ergasiological reorientation." His "speaking in terms of ergasiology aims at making action and performance basic and the sensory and affective principles directive." (A letter, July 19, 1942.) "Ergasias" are "actions and reactions and attitudes of the 'he' or 'she' or 'you' or 'I,' i.e., mentally or more or less consciously integrated behavior to be studied for the role they play in definable situations, from mere sensory and perceptual or affective to intentional-volitional performances." (Meyer, in *The Problem of Mental Disorder* (Madison Bentley and E. V. Cowdry, eds.), 1934, 55, McGraw-Hill).

(Cf. Alfred Lief (ed.), *The Commonsense Psychiatry of Dr. Adolf Meyer*, 1948 (McGraw-Hill).

Cults and Science

Of the views which have been presented, some have seemed relatively cultish, and others, especially the positivistic views, scientific. What may we conclude about cults, science, and the scientific spirit?

Overlapping between cults and science. Like magic, both cults and science are man-made. Both cultists and scientists work at somewhat the same material; their methods are not wholly different; and perhaps no cultists are wholly unscientific, and no scientists are wholly non-cultish even in their own fields of work. Still, we can distinguish roughly between cults and science by comparing cultists with scientists.

Differences between cults and science. Let us compare, ideally, a pure cultist with a pure scientist, using the terms "cultist" and "scientist" for those extreme types.

The cultist and the scientist differ in the ways they see their fields. The cultist thinks that his field is self-sufficient or even that it is the only field. The scientist, on the other hand, knows that every field is one of many that are naturally allied.

The cultist and the scientist differ also in their awareness of history. The cultist thinks that his creed was complete from the beginning; or that, if the creed has grown, it has grown only progressively, without radical revision. The scientist realizes that scientific knowledge is a heritage from many workers; a heritage which he must administer, constantly eliminating the false and developing the true.

Likewise, the cultist and the scientist differ in the ways they hold their ideas. The cultist merely believes, or tries to believe; the scientist hypothesizes. In other words, the cultist holds to propositions as true from the beginning; while the scientist entertains propositions as "candidates for verification," as Dotterer put it.³³ Moreover, the cultist's doctrine is, as it were, within himself; wherefore his interest is to establish his own position. If he enters into discussion at all, he tends to exaggerate or to minimize the differences between his opponents' position and his own and to oversimplify or otherwise distort the opponents' views. When his own view is doubted, he becomes self-defensive; he is hurt; and he ascribes the doubt to sin or ignorance or both. The scientist's hypothesis, on the contrary, is outside himself; and

³³ R. H. Dotterer, *Beginners' Logic*, 1924, 139 (Macmillan).

his interest is to learn the truth about it and beyond it. Accordingly, he welcomes discussion as possible cooperation toward the truth. When data are presented which change his hypothesis, he welcomes the change as an interesting inconvenience; and he is grateful to the contributor of the data, even though the contributor be a cultist.

The cultist is not, however, more effective than the scientist, at least not in the long run. The cultist thinks that the scientist must often doubt, but that his own ideas are in no danger of change. Nevertheless, living in a world that does change, the cultist is often more or less paralyzed by the fear that he might doubt. The scientist, meanwhile, is confident. He starts from those better-established hypotheses that are called facts; he submits his newer hypotheses to be tested by facts; he believes that his ideas may be changed at any time by facts; and, though living always in the presence of possibility, he lives and works on the hearty basis of probability.

It follows that, with respect to his pupils, the cultist is a preacher, and the scientist is a teacher; for the cultist appeals primarily to authority, and the scientist primarily to evidence.

Conditions that favor cults. The first condition that favors cults is mental passivity. People tend to follow leaders and crowds rather than to develop independent judgment. People tend likewise to believe simply, when they can, and to hypothesize only when they must. A second condition is some great desire, such as for health, security, or happiness, which the cult is supposed to satisfy. Probably every cult has grown up around some truth which, when examined and sifted scientifically, helps to meet the given desire. A final condition favorable to cults is difficulty of the field, difficulty which protects the cult from experimental check.

A glance at various fields seems to substantiate these conditions. Mental passivity is evident in all fields, but particularly in those in which desires are great and experimental checks are lacking. The fields of mechanics, physiology, general medicine, psychotherapy, politics, and religion, in that order, represent a scale both of increasing desires and of decreasing experimental checks; so that, from the relative cultlessness of mechanics to the extreme cultishness of religion, we have an increasing appeal to the human tendency to accept without proof. Psychotherapy, in particular, seeks to make possible the enjoyment of life itself, yet greatly lacks experimental precision. In these ways psy-

chotherapy and its supporting abnormal psychology are exceedingly liable to cultishness.

The cure for cults would seem to lie in general enlightenment; controlled observation, including experimental checks when possible; and free communication, thought, and discussion;—in a word, the flowering of the scientific spirit.

The scientific spirit. Stuart P. Sherman called the scientific spirit the modern spirit. By this phrase he meant, primarily, "the disposition to accept nothing on authority, but to bring all reports to the test of experience. The modern spirit is, first of all, a free spirit open on all sides to the influx of truth, *even from the past*. But freedom is not its only characteristic. The modern spirit is marked, further, by an active curiosity, which grows by what it feeds upon, and goes ever inquiring for fresher and sounder information. . . . Since it seeks the best, it is . . . also a critical spirit, constantly sifting, discriminating, rejecting, and holding fast that which is good, only till that which is better is within sight. This endless quest . . . requires labor, requires pain, requires a measure of courage; and so the modern spirit . . . is an heroic spirit. As a reward for difficulties gallantly undertaken, the gods bestow on the modern spirit a kind of eternal youth, with unfailing powers of recuperation and growth."³⁴

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³⁴ Adapted from Stuart P. Sherman, *The Genius of America: Studies in Behalf of the Younger Generation*, 1925, 74-75 (Scribner).

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4 | Basic Concepts

In establishing axioms by this kind of induction, we must also examine and try whether the axiom so established be framed to the measure of those particulars only from which it is derived, or whether it be larger and wider. And if it be larger and wider, we must observe whether by indicating to us new particulars it confirm that wideness and largeness as by a collateral security; that we may not either stick fast in things already known, or loosely grasp at shadows and abstract form; not at things solid and realised in matter. And when this process shall have come into use, then at last shall we see the dawn of a solid hope.

Francis Bacon

The ideal itself has its roots in natural conditions; it emerges when the imagination idealizes existence by laying hold of the possibilities offered to thought and action.

John Dewey

Abnormal psychology, we said, is the psychology of those mental states and of those minds which are relatively far from ideal integration. This conception of abnormal psychology raises the questions: Just what does integration mean? How does it relate to conformity, intelligence, educability, and sagacity? Why speak of ideal integration? How define normal and abnormal? What further concepts seem basic to our study? And how do these several concepts relate to scientific method?

Integration

Every living organism or society of organisms lives in intimate relation with its environment, yet functions more or less as a whole. A plant functions so when it grows and maintains itself and its kind simply as a plant. An animal functions much like a plant in some ways, especially during sleep; but it functions more as a whole through its "mental and physical" activities when awake. A man functions much like a plant, when asleep, and like an animal, often; but he functions more as a whole when his vegetative and animal powers are organized with his more highly developed, human powers in his best waking life. A society functions much like a plant, an animal, and a man; also as a whole in so far as the contributions of its past and present members are organized in the best group life. Such functioning-as-a-whole we call integrated functioning; in a word, integration.

Definition. *Integration means coordinated, rich, unified, stable functioning; also whatever brings about such functioning.* We shall use "integration" most often in the former sense.

Integration, in the sense of integrated functioning, we have said may characterize either a society or an organism. It may also characterize a part of an organism. Psychology is concerned sometimes with societies, but usually with organisms. Dynamic psychology and abnormal psychology are concerned with human organisms or individuals and sometimes with parts of individuals. A part is anything from a simple neural element to a whole "side of the personality" or even, in an extreme case, a more or less separate personality that has developed within the individual.

"Coordinated, rich, unified, and stable" are not precise terms; but they suggest distinguishable criteria of integration.

Integrated functioning is *coordinated* in that the parts work together and not against each other. A society in which one group tries to move a raft upstream while another group tries to move the same raft downstream is, to that extent at least, not integrated, because the society is not coordinated. A person in an epileptic fit is not integrated, because his muscles are working against one another; he is not coordinated.

Integrated functioning is also *rich* in that it involves all relevant parts, including the most highly evolved parts. A society whose leaders represent only a minor interest or small group of the citizens, or those

who are not the best members of that society, is not an integrated society; for its functioning, though perhaps impressive, is not what we should call rich. Similarly, a mental patient who takes himself to be Napoleon, and acts the part faithfully, is not well integrated; for, however elaborate and systematized be his delusions and actions, he fails to perceive, think, and do richly enough to express his total nature. So far as his various parts are available at all, many of them are kept from functioning; for example, those that should incline him to ordinary give-and-take with his fellows. That his highest parts, particularly his cortical functions, are not adequately involved is shown by his intellectual "blind spots." Much of his nature is thwarted, even stifled, by his single Napoleonic pattern. Thus his functioning, though perhaps dazzling, is not rich.

Besides being coordinated and rich, integrated functioning is *unified*. This means that the parts do not merely work together through lack of mutual opposition, or through functioning like a couple of independent clocks where one shows the time and the other strikes the hours in external agreement. In integrated functioning, the parts not only work together; they *are* together, in one functioning. Viewed less externally, in integrated functioning the parts are together in a consensus, a sympathetic agreement. A society whose different sections, however harmonious in outward effect, function independently and ignorantly of each other is not integrated because the society is not unified. Likewise, an individual who is so divided that he follows literally the Biblical injunction to "let not thy left hand know what thy right hand doeth" is not integrated because he is not unified.

Finally, integrated functioning is *stable* in that it holds together well; it is not too easily discoordinated, impoverished, or divided. A society whose members often fight one another, or lose common interest, or get out of touch with one another, lacks integration because it is not a stable society. An individual who is easily upset, confused, or inconsistent lacks integration because he is not a stable individual.

Probably the four criteria of integration are interrelated. "Coordinated" and "unified," especially, seem interrelated: perhaps, indeed, all truly coordinated functioning is unified, and all truly unified functioning is coordinated. Moreover, "rich" suggests coordinated and unified, and "stable" means coordinated and unified over a period of time. Still, the several criteria mark, at least, different aspects of integration and serve to show why an epileptic, or a Napoleonic psychotic, or a multiple personality, or one whose reactions cannot be depended

upon, lacks integration. Thus we take integration to mean coordinated, rich, unified, stable functioning.

Whether the functioning be that of a society, an individual, or a part of an individual, the integration referred to means not integration of that unit to other units, however much that may help the integration meant, but *integration of the unit to or within itself*. Consequently, integration of the individual means not integration of the individual to his society, though that may occur too, but *integration of the individual to or within himself*. This point will become more intelligible as we proceed.

From here on we shall consider integration as applied not to societies but to individuals and to parts of individuals.

Complexities of integration. Granted that parts of an individual can be integrated in themselves, it follows that some parts can be better integrated than others. Thus, one "side" of a person may be better integrated than another side; for example, a man may be well integrated in his economic activities but poorly integrated in his social activities. Thus the integration of the individual is often, if not always, *unhomogeneous*.

Moreover, every one becomes less integrated whenever he becomes confused, loses his temper, becomes abnormally suggestible, or falls asleep; and he becomes more integrated when he awakens, understands, decides, or achieves "harmony of soul." Integration varies with health, attitudes, sets, excitations from within and from without, and past and present opportunities for learning relative to any given situation; and situations change constantly. Thus integration *changes from time to time*.

The measurement of integration. Whether taken as momentary or as typical of a given individual, integration can be gauged only roughly. No very satisfactory tests of integration have been worked out, and no well-standardized scale of integration comparable to the scale of intelligence exists. Nevertheless, to enable us to think in somewhat quantitative terms, we shall assume that integration could be quantified and represented upon a hypothetical "scale of integration," and that an individual's degree of integration at any time could be represented by an "integration score."

Ordinarily, when speaking of integration, we mean good integration.

Conformity

Definition. Conformity means doing what one's society wants one to do; in other words, *fitting in with the current social standards*, the standards supported by law and custom. These standards are not merely what the society professes, or what it tries occasionally, but what it requires ordinarily in practice.

Any person who has learned that different societies, eras, and theorists have different social standards is liable to think that integration must mean merely conformity. We shall see, however, that it is easy to confuse integration with conformity; that the two processes may occur either together or separately; and that we need to distinguish between them.

Confusion of integration with conformity. As the sociologist observes, the primitive mind, ancient or modern, seems to classify all people into two groups, the good, who conform, and the bad, who do not conform. The primitive mind feels that those who do not conform should be killed, exiled, or somehow punished, at least ostracized.

The somewhat more enlightened mind divides the people who do not conform into those who will not and those who cannot. From this point of view, the ones who cannot conform should be kept in asylums and, if possible, should be cured so that they can conform. This leaves only those who *will* not conform to be punished.

The still more enlightened mind assumes that the reactions of the asylum group and of the criminal group alike are caused and that, instead of punishing either group, society should try to understand and help both groups. This means that, ideally, every individual should receive whatever treatment will enable him to conform to whatever standards the society finds necessary; for example, enable him to respect others' lives and property. At the same time, society should modify its standards in whatever practicable ways will make it possible for him to conform; for example, abolish the blue laws.

Are integration and conformity then essentially one and the same?

Integration with conformity. Naturally, integration (coordinated, rich, unified, and stable functioning) and conformity (fitting in with the current social standards) often occur together. Every person has been born and brought up, through his early years at least, in a society. Almost every person lives as a member of a society. Every

society insists that every one of its members conform to its standards. From any member who does not so conform the society is likely to take away, if not his life, at least some of his happiness. If the society allows him to live, it may so isolate him from the everyday, mostly sound reactions of the remaining members that, if he is not a very stable person, his own ideas and other reactions become ingrown, fantastic, unsound. Thus, like many a person in solitary confinement, or like a lonely herdsman, he may develop hallucinations and delusions of imaginary companions or of stirring roles for himself, which show that he has lost integration. Conversely, the psychiatrist wants many a mental patient, in order to gain integration, to associate with "normal" people and try to live as they do. Any person who is not beset by doubt, when living in a Protestant community, may be best integrated by being a Protestant, and when living in a Catholic community, by being a Catholic. It is hard to live out of tune with one's neighbors. Naturally, integration often occurs together with conformity and lack of integration with lack of conformity.

Conformity without integration. On the other hand, conformity often occurs apart from integration. A person who has any strong interest which is out of line with his society's standards may still conform; but, unless he brings that interest into line or inhibits it normally, his functioning becomes less coordinated, less rich, less unified, or less stable, hence less integrated. For example, a person who doubts his neighbors' creed, and who still attempts to follow that creed, may conform only by blocking, impoverishing, or even disrupting his own integration. Many individuals, especially in dictators' countries, conform thus at the cost of integration.

Integration without conformity. Likewise, though probably less often, integration occurs apart from conformity. Socrates saw that his society needed better intellectual and ethical standards. He undertook to discover those standards and to persuade his fellow men to adopt them. For his pains he was lampooned, reviled, falsely accused, and sentenced to die. Throughout all, he seems to have maintained his integration, even until he had drunk the hemlock. If he had been false to his best insights, he would have lost his "harmony of soul," his integration.

Edward Bellamy saw that the society of his time needed to be improved socially, economically, and otherwise. Systematically, and drawing upon various sources, he thought out a program of improve-

ment; and he published his program and defended it throughout the rest of his life. He knew from the beginning that he would be grossly misunderstood and ostracized for so differing from his fellows; yet he remained well integrated as he held to his vision. Apparently, his integration required, and gained from, thinking beyond his fellows' views.¹

Numerous leaders in industry, science, religion, and other fields have demonstrated that, under some circumstances, integration occurs only at the cost of conformity.

How integration relates to conformity. To confuse integration with conformity is to make too much of society and too little of the individual. Undoubtedly, the individual derives much of his being from society; but he also derives much from germ plasm, nutrition, and other nonsocial factors. Society, on the other hand, would be nonexistent apart from individuals. Thus there are primarily individual processes, such as integration, and social processes, such as conformity, that ought not to be confused with one another.

In the final analysis, *integration means individual wholeness*; all parts of the individual working together and so achieving true *individuality*. *Conformity means social alikeness*; any unruly parts of the individual being forced down or even destroyed to the end of *conventionality*.

There are different kinds of conformity and of nonconformity. Wholehearted conformity or nonconformity is fully integrated, understanding, and spontaneous, hence expresses the entire personality. The halfhearted kind is not so integrated, is not so understanding, and is mechanical or even forced; hence the halfhearted kind expresses only part of the person, perhaps merely his interest to avoid punishment.

For example, when a country is threatened with war and urges its young men to enlist in the army, one man enlists because he wholly wants to do what he can to defend his country; all of him wants to enlist. A second man enlists merely because others are doing it, or he fears to be called a coward, or he wants to persuade himself that he is not a coward. Thus a part of him does not want to enlist. Later, when men are being drafted, a third man decides fully that to fight would be wrong; and he becomes wholeheartedly a conscientious objector. A fourth man becomes halfheartedly a conscientious objector

¹ Cf. Arthur E. Morgan, *Edward Bellamy*, 1944 (Macmillan). Neither the example nor the reference implies complete endorsement of Bellamy's program.

as he justifies thereby his own unacknowledged cowardice or desire to feel superior to ordinary men; yet a part of him wants to fight.

Both conscientious objectors are brought up before each of two judges, one of them a militarist and the other a pacifist. The militaristic judge feels that such objectors are doing wrong. The pacifistic judge feels that they are doing right. The two judges differ, however, only about the standards of right and wrong to which they think the objectors should conform; presumably they are not passing upon the objectors' integration. Were they to study each man carefully and consider his integration, by whatever name it be called, we should expect them to agree that one man's conscientious objection expresses *him*, whereas the other man's objection expresses only a *part of him*.

Since *wholehearted conformity or nonconformity* expresses the entire person, it *reflects integration*; and since *halfhearted conformity or nonconformity* expresses only part of the personality, it *disguises lack of integration*.

Incidentally, the individuality that comes through integration does not mean either unreasonable idiosyncrasy or selfish individualism. Each of these, as we shall see, expresses lack of integration. Forced conformity often begets unreasonable idiosyncrasy and a devious, if not explosive, selfish individualism.

Intelligence

Definition. The term intelligence is variously used. According to what seems the most satisfactory use, *intelligence is native capacity to learn*.²

In this definition, the phrase "to learn" covers much. It covers learning something new and applying former learning in a new situation; sensory learning and motor learning; conditioning and association; rote and meaningful learning; concrete and abstract learning; trial-and-error and sudden learning; also problem-solving, decision, abstraction, analysis, synthesis, and creative thought, as *higher forms of learning*.

"Native capacity" means that inherited nerve tissues, general and special energies, and other factors establish an outside limit for all the individual's learning processes *throughout his lifetime*. When he is an infant, he cannot approximate that limit; when he is mature, he may approximate it; and when he is senile, he can hardly approximate it further and likely begins to retrogress from it by forgetting faster than

² Cf. Edward L. Thorndike, *Intelligence of Animals and Men*, 1932 (Univ. of Chicago Press).

he learns. Thus his intelligence is somewhat like a room for his life; a room out of which he can never burst, yet which seldom irks him because neither he nor anyone else can perceive its limits directly, he never fills it completely, and he naturally feels at home in it.

Various kinds of intelligence. The "native capacity to learn," which we call intelligence, allows for various kinds of learning, hence for various kinds of intelligence: cognitive, motor, and affective, also social, musical, and mechanical intelligence, according to various classifications. Thus the outside limit for all learnings includes limits for special kinds of learnings, which limits also seem native. When not qualified, however, we shall take intelligence to mean the total capacity for all the individual's learnings.

Individual differences. Pictured graphically, this total capacity differs in size and shape from individual to individual; in size, in that one individual has larger native capacity than another individual; and in shape, in that any individual's special capacities, sectors of his general capacity, are probably unequal—for example, he may have larger capacity for learning music than for learning mechanics. Most relevant to our field, however, is the total native capacity to learn.

Measurement of intelligence. Intelligence, we said, is somewhat like a room whose dimensions are limited but are not directly perceivable. Though such a room cannot be measured directly or precisely, its dimensions can be inferred more or less accurately through perceiving and measuring the various objects that go into it. In the same way, intelligence can be neither perceived nor measured directly or precisely; yet its dimensions can be inferred more or less accurately through perceiving and measuring, so far as practicable, what the given individual learns. (This includes problem-solving and other higher forms of learning.)

As so inferred, the individual's degree of intelligence is indicated technically, and *more or less* accurately, by his intelligence quotient (I.Q.). The fact that the I.Q. fluctuates somewhat according to health, attitudes, and educational opportunities shows that what one learns depends not only upon native capacity to learn.

Integration and intelligence. There is a popular notion that the intelligent individual perceives so many problems that he cannot be well

integrated, while the unintelligent individual perceives so few problems that he alone can be well integrated; in other words, that intelligence is correlated negatively with integration. Apparently those who hold this notion assume that the more complex the machine the more likely it is to break down. Actually, many a simple machine breaks down; and the more complex machine is often the better made and the more self-regulating. Mental abnormalities are frequent among the feeble-minded; and studies of gifted children and adults fail to show any negative correlation between intelligence and integration.

On the contrary, since too-difficult problems often disrupt integration, high intelligence should help the individual either to solve or to circumvent such problems and so to maintain good integration. Thus we might expect to find intelligence correlated positively with integration. Since, however, integration in any situation is limited also by health, attitudes, sets, and opportunities for learning, we should not expect any such correlation to be close.³

For example, each of two feeble-minded boys has an I.Q. of 60. One of the boys, however, works and plays smoothly, wholeheartedly, and dependably, whereas the other boy is variously tense, jerky, listless, explosive, undependable. Two men are highly intelligent; yet one is effective and reliable and the other ineffective and unreliable. Thus integration varies more or less independently of intelligence: persons at any given point on the scale of *intelligence* are likely to be at very different points on our hypothetical scale of *integration*, either characteristically or momentarily.

Educability

Definition. With intelligence marked off as native capacity to learn, let us say that *educability* is *present ability to learn*.

Thus educability is limited by intelligence, health, attitudes, and sets. Educability is like whatever space in the room of intelligence is left by temporary or permanent partitions or other obstacles. Thus edu-

³ H. L. Hollingworth and others have offered evidence that, on the whole, psychoneurotics are less intelligent than normal persons; but this evidence has been questioned. Cf. H. L. Hollingworth, *Abnormal Psychology*, 1930, 364-379 (Ronald); M. N. Chappell and F. H. Pike, *The Nature and Control of Psychological Illness* (mimeographed), 1935, 195. Cf. also Julia G. Wilcox, *The Psychoneurotic Defective*, unpublished MS, 1930; Lewis M. Terman and others, *Genetic Studies of Genius*, 1925 (Stanford Univ. Press); Henry H. Goddard, *J. Abn. Psychol.*, 1921, 16:47-50, 54, or Taylor, *Readings*, 5-7; G. Henry Katz, *Nerv. Ch.*, 1944, 2:37-43; Mandel Sherman, *Intelligence and Its Deviations*, 1945 (Ronald); Abraham Myerson, *Speaking of Man*, 1950, 143 ff. (Knopf).

cability can be pictured as the available capacity for all the individual's learning processes possible *at the time*.

Aptitude, a current concept, seems to emphasize less the individual's ability to learn at the time than his capacity for some particular kind of learning; which capacity we would ascribe to a particular kind of intelligence.

Measurement of educability. Since it is restricted to the present, educability is more within range of investigation than is intelligence. Educability is inferred, more or less accurately, from tests of present ability to learn. We should call such tests educability tests. When standardized and applied to mental patients, some of these tests suggest psychiatric diagnoses.

Integration and educability. There is considerable positive correlation between integration and educability, because both depend partly upon health, attitudes, sets, and various reactions. Every clinical worker in educational problems knows that the child who is at odds with himself, half awake, or otherwise poorly integrated cannot learn normally, and that to help such a child become better integrated is to make him more educable.

Sagacity

Sagacity is a combination of present ability to learn and all that the individual has learned; *sagacity is educability and achieved learning*.

Sagacity, therefore, depends not only upon intelligence, health, attitudes, and sets, but also upon how well those resources have been used previously in learning. Sagacity can be pictured as the available capacity for all the individual's learnings, possible and achieved, at the time.

Sagacity is measured by educability tests combined with achievement tests. Since most if not all "intelligence tests" are such combined tests, the I.Q.'s derived from them would seem to measure sagacity more closely than intelligence.

Ideal Integration

If integration occurs in various degrees, why not define abnormal psychology purely in terms of those degrees? Why bother with the notion of "ideal integration"?

Use of this concept. Any reference to degrees on a scale implies two fixed points between which the scale runs. For some scales, as on an ordinary thermometer, those points have been determined experimentally and are plain to see. For any such quality as health, beauty, or integration, however, the scale must run between fixed points which are purely hypothetical; the fixed points are neither experimentally determined nor observable but have been inferred from the given quality's known variations. Thus our scale runs hypothetically between complete lack of integration and ideal integration.

Its meaning. Ideal integration means perfectly coordinated, rich, unified, and stable functioning. *Within the limits of his powers*, any person who embodies such integration would be perfectly *reasonable*, in that he would understand himself and the world and would act accordingly; he would also be perfectly *adjusted in a dynamic sense*, in that he would be running well, whether or not he conformed to his society's standards; he would be *creative* because he would be fully alive; and he would be *happy* in his integrated living. In contrast, a poorly integrated person is comparatively unreasonable, maladjusted, uncreative, and unhappy.

Some writers have supposed that a perfectly reasonable and adjusted person could not be creative; that only a maladjusted person can be sufficiently uncomfortable to want to create anything. According to that view, genius derives from maladjustment or even disease; perfect adjustment, healthy-mindedness, can produce only conformity and, at best, mediocrity.

It is true that some poorly integrated persons are peculiarly creative. The claim, however, that only the poorly integrated are creative confuses maladjustment with motivation, and integration with non-motivation. Maladjustment is often keenly motivating and drives the person to do the best he can within his limitations, *including his limitations of integration*. Commonly, his creative work occurs as he achieves some integration. Still, in so far as he remains unintegrated, his output is likely more impoverished or warped than universal, hence more intrusive than contributory. Moreover, some forms of maladjustment mean lack of motivation. An example is the characteristic indifference of simple dementia praecox, which is notoriously uncreative. On the other hand, the integrated person is not unmotivated but is well motivated. If he were not well motivated, his functioning would not

be coordinated, rich, unified, and stable. He may be motivated to earn a living, to overcome a social handicap, to bring up a family, to develop an airplane, to secure world peace, to write plays whose appeal is universal; but whatever his course, he can use well what powers he has. The wholly unmotivated person is not integrated; he is dead. The integrated person is living; and he enjoys living.

Some writers insist that many a person who has become poorly integrated is happier than when he was better integrated. For example, a man who was unhappy when trying futilely to be a mechanic seems much happier when he develops a psychoneurosis, stops trying, and is cared for tenderly by his family. Another man who was unhappy when trying and failing to make a fortune seems happier when he develops delusions of wealth and lives in an asylum.

Perhaps the truth is that the patient's specially dissociated patterns, as we shall call them, contain together more integration than he had when he was largely a battle of motives, trying to be a mechanic or a money maker while trying also not to acknowledge his own failures. However that may be, it seems fair to say that his pathological "solution of the problem" brings him not so much happiness as comfort; and that his brighter moments especially, in so far as he has such moments, are corroded by his unsolved problem. He cannot enjoy the happiness of an integrated life.

Some persons have been cured of alcoholism or other aberrations through a kind of psychotherapy, whether formal or not, which brings about "conversion to a new way of life." Tiebout's observations of at least thirteen such persons indicate that their "conversion" represented a great increase in integration. Unlike their state before the cure, they became calm, docile, and friendly, less perfectionistic, more able to live in the world as it is, and, at the same time, more interested and able to do good learning and good work.

As one patient put it, "Learning is after all a matter of cooperation, and I don't believe I've ever cooperated in anything in all my life. I've thought I had but I always did it with reservations." Another said, "I now pray to let my mind see and hear all and to let my mind stay open. I want to find out what's wrong. I want to know the facts but I now know there are many different outlets from a fact." This patient commented particularly upon her increased ability to think. The several patients also became much more objective about the world, other people, and themselves. With regard to work, one said: "Before, I used to be busy. Now I am just occupied." Another explained, "Now I can

see there is fun in doing the job, not so I can outshine anybody else but so I know inside I've been doing my honest best."⁴

Creativity seems to depend largely upon learning and work. Perhaps the patients cited were not capable of the higher grades of learning, work, and creativity. These patients, however, seemed to become more rather than less creative and happy as they became more integrated.

Origin of this concept. As suggested already, the concept of ideal integration derives from experience. Every normal adult has formed concepts of order, health, beauty, and the like through perceiving these qualities in various degrees in daily life. In the same way, everyone has observed different grades of functioning in himself and in others; perhaps he has read about Socrates, Gustavus Adolphus, and others whose lives ran well; he has learned something from associates, teachers, and others about managing different grades of functioning and toward getting a life to run well; and, through reflecting upon these things, he has developed a concept, whether verbalized or not, of what we call integration. Then, in view of the known variations of that quality, he develops also some concept of ideal integration, just as he does of ideal order or ideal health.⁵

Normal and Abnormal

Their meaning. Given the scale of integration, hypothetical though it be, we can say that *normal means relatively close to ideal integration*, and *abnormal means relatively far from ideal integration*.

The two definitions are not very precise. Apparently, however, they are as precise as our present knowledge permits, and they cover the prevailing usage. If the scale were standardized, we might determine formally, perhaps statistically, "inferior," "average," and "superior" levels of integration and consider only the inferior level abnormal. Lacking such an instrument, we can only sense roughly the degree of integration below which we should call every instance abnormal and above which we should call every instance normal.

Application to abnormal psychology. Abnormal psychology, we have said, is concerned not only with mental disorders but also with everyday mental abnormalities. These abnormalities include many mental

⁴ Harry M. Tiebout, in Bernard Glueck (ed.), *Current Therapies of Personality Disorders*, 1946, 162-163 (Grune). Cf. also PA 25 6724.

⁵ Cf. H. A. Overstreet, *The Mature Mind*, 1949, 87 (Norton).

states of all persons. Accordingly, we apply the term abnormal to some *mental states* and to some *minds*.

Whether a given *mental state* is to be called abnormal or not depends upon how far that state is from ideal integration. Good waking attention is a normal mental state because it is well integrated. Scattered attention, as when one is tired, is an abnormal, though not pathological, mental state. Complete lack of attention, as in dreamless sleep (if this ever occurs), is an abnormal mental state likewise, though certainly not pathological and often highly desirable. Dreams, also, are abnormal, as any one who troubles to compare them with lunacy can perceive; although dreams flourish in the sanest of people.

Whether a given *mind* is to be called abnormal depends upon how far that mind, on the whole, is from ideal integration. Here the concept of integration must be applied not only to particular states but also to the whole series of states, the stream of mental life. The normal person's interests are, though diverse, relatively coordinated, rich, unified, and stable; even his sleep occurs within an intelligible, if not uniform, scheme of interests; and his personality is relatively sound, for his mental states are abnormal only at times, and at those times he can usually swing back to normal mental states upon request. In comparison, the abnormal person's interests are somehow conflicting, impoverished, separated from each other, or unstable; his sleep may reflect and further that same confusion of interests; and, in so far as his mind is abnormal, his personality is crippled, for his mental states are abnormal most or all of the time, and he cannot swing back to normal mental states unless by unusual means.

A Pragmatic Positivism

In case the reader wonders whether this book is mentalistic, dualistic, materialistic, or otherwise ontological, let us outline the basic view assumed here. This view is a pragmatic positivism. Other names for it are scientific empiricism and naturalism. It derives more or less selectively from such various writers as Hume, Mach, James, Dewey, Hoernlé, Whitehead, and Boring. This view seems to be implicit in much present-day psychology, including the developments called "operationism."⁶ The view is too incomplete, however, to answer all relevant theoretical questions; it is only a working view.⁷

⁶ Cf. H. Israel and B. Goldstein, *Psychol. Rev.*, 1944, 51:177-188; Edwin G. Boring and others, respectively, *ibid.*, 1945, 52:241-294.

⁷ Cf. Herbert Feigl, *Philos. Sci.*, 1934, 1:420-445; Julius Seelye Bixler, *Religion for Free Minds*, 1939 (Harper).

Knowledge and events. According to this view, we do not know either "mind" or "matter" as something transcendently real. We know only functionings, processes, effects upon us; in a word, we know only experience. Experience reduces to events. Some events are variously pleasant, cold, fragrant, blue, active, reminiscent, hopeful, personal, or combinations of such qualities; other events are hard, resistant, passive, impersonal; still others are apparently universal, aspects of all possible events. As experience grows, events become classified into "mental," "physical," and "logical" (or mathematical or formal) categories; and the terms "mind," "matter," and "relations," "universals," and the like, grow up to serve our thinking but also to ensnare it by suggesting entities behind events, as in the philosophy of Descartes. As experience grows further, however, "mind" and "matter," "mental" and "physical," and perhaps the remaining terms lose their ontological character and become purely instrumental for pointing to classes or organizations of events. Thus instrumentally we shall use all these terms without quotation marks.

Determinism. This loss of ontology does not mean loss of order and science. Apparently, events occur only after certain other events and before certain further events. Thus nature seems to work uniformly according to cause-and-effect.

True, this uniformity of nature is not proved; we do not know that cause-and-effect holds universally. Indeed, we do not understand how it ever could be proved, especially where people seem to make "free choices" between alternatives that are closely balanced. The uniformity of nature is only an assumption.

It is an assumption, however, which has developed through induction. At the outset, men thought all changes were the work of free spirits. Gradually men came to explain changes not by spirits but by cause-and-effect. They discovered uniformity in nature, first in the inanimate world, then in the world of plants, later in animal life, and finally in human mental processes. Everywhere, every gain in knowledge has been a gain in knowledge of apparent uniformity. Time and again, the assumption of uniformity has led to a gain in knowledge, in the mental field as in every other. Any denial of uniformity denies possible knowledge, knowledge which we need. Thus has the uniformity of nature become the working hypothesis if not the faith of the scientist. In its emphasis upon cause-and-effect in mental life, he calls it the hypothesis of determinism.

Relations between events. Determinism does not mean that we know the "inner nature" of any cause-and-effect relationship. Modern determinism is positivistic; it thinks not of substantial connections but of dependable relations. "First the blade, then the ear, then the full corn in the ear"; "as the twig is bent the tree's inclined"; first the spark, then the explosion; following upon carbon-dioxide imbalance in the blood, neural impulses, muscular contractions, and breathing occur; after a particular stimulation befalls the eye under particular conditions, the sensation of blue is experienced; given a problem which involves an individual seriously but not too seriously, if he has a normal nervous system he begins to reason; and so on. If *A* happens, *B* happens; that is all we know. Processes, events, are dependably related to one another.

They are related not only along the time series, i.e., between cause and effect, but also across it, between simultaneous phenomena, apparently because many a cause has an effect with many sides or components between which correlations appear.

Mental and physical. Mental processes seem so definitely correlated with physical processes that we speak sometimes of "the bodily basis" of a mental process. This is legitimate, provided we mean a dependable correlation of the mental with the physical and not that the mental is any less real than the physical. The mental is just as real, though not so simply predictable, as the physical.

A person is angry. He feels "worked up." This feeling is a mental event. We see muscular, circulatory, and respiratory changes, physical events that show that he is worked up. The mental event is real, though we cannot measure it with a linear or a weighing scale, and it is hard to get at, agree about, and predict. The physical events are real too and often more obvious and predictable.

Explanation of relations. Every explanation is in terms of what the explainer knows or assumes. A primitive man may explain the sun's rising as a bright-and-shining god's awakening and its setting as his going to sleep. This explanation satisfies the primitive because he believes that gods exist, that they move in their several realms, that they rest periodically, and that some are bright and shining; and he knows nothing incompatible with this explanation. Thus the primitive has related, in his crude way, his observations of the sun with his ideas of gods and the world; he has achieved, within the range of his ideas, a coherent intellectual system.

A scientist is not satisfied with the primitive's explanation, not because the scientist's thinking is different in kind from that of the primitive, but because the scientist has more and better observations, more numerous and significant events, with which to relate his observations of the sun.

The scientist attempts to explain the sun's course, and various other phenomena, by scientific principles, scientific explanations. These explanations differ essentially from those of the primitive, not in transcending the human, but in comprehending dependable relations between more events. Thus, the primitive explains sunlight; the scientist explains the light of the sun, moon, stars, matches, flashlights, and mirrors. In other words, scientific principles worked out to explain the connection between any *A* and its *B* are only inclusive relations. *A* causes *B* because *A* is a part of *A'*, and *B* is a part of *B'*, and we know or assume that *A'* causes *B'*; or *A* causes *B* because *A* causes *A'*, which causes *B'*, which causes *B*. Such scientific principles "explain" by comprehending many known relations.

This explanation of explanation, whether reducing or universalizing its mystery, does not decrease its worth.

Linguistic freedom. If we cannot know mind, matter, or relations as transcendently real, it follows that to hold to "ontologically consistent" language, language either all mental or all physical, would reflect the very dualism that Descartes perpetuated. If we are free to trace relations, we are free to talk in whatever mental, physical, or logical terms are most convenient or economical.

Linguistic economy. Any psychological event is a compound or organization of mental, physical, and logical component events. It therefore cannot be described wholly by either term, mental or physical, alone. Take a particular instance of terror. Neither the person who has the terror nor anyone who studies him knows every mental or every physical change that occurs in the emotion. From what we do know, however, we assume that the terror as a whole comes from antecedent events; that each introspective event correlates with some neural event; and that the whole terror and all its parts somehow embody logical relations, principles, events.

Yet we cannot undertake to portray all the introspective and bodily aspects of the emotion every time we mention it; we are forced into a descriptive shorthand. In referring to a man, we often omit to mention

his complexion, special abilities, and family qualities. We say simply "the big fellow," "the carpenter," or "the customer," according to whatever aspect of him is most important. Even when we have described him very fully, for a possible employer or for posterity, and have mentioned his complexion, abilities, family life and all the rest, we refer to him thereafter by some particular aspect of himself, such as "the champion boxer," "the ship's carpenter," or "the typical customer"; or we use some name such as "Mr. Jones," which has come to stand for the complete man. In any case, we refer to him by some aspect which is correlated with the rest of him.

Choice of language. In referring to any complicated psychological event, sometimes it is most convenient to mention only the introspective aspects. These aspects, if not so demonstrable as the bodily aspects, are nevertheless often better known, by direct experience. In some instances, indeed, the bodily aspects are not known at all. For an emergency emotion, the phrase "all worked up" was in common use long before "the sympathetic nervous system" and "adrenal secretion" were heard of; and, to take another example, our ignorance of the physical correlates of "pleasantness" and "unpleasantness" does not make these terms meaningless or useless. Often, on the other hand, it is convenient to mention only the bodily aspects of the total event. Bodily aspects are somehow very "objective": they can be pointed to easily; they can be described in words that most people understand; and they fit in well with other, equally objective physical events in the environment. Often, accordingly, we shall find it most economical to use behavioristic language.

Ideally, we should use logical, mathematical, or wholly formal language, as somehow the *most* objective and economical language; but the available observations and concepts do not yet justify much of that language.

Functional structures, wholes, and parts. The controversies between structuralism, functionalism, associationism, and Gestalt psychology seem largely reducible through taking body and mind alike as having both structure and function which are to be considered both analytically and synthetically.

Structure appears in the body whenever we catch it at rest and compare and perhaps dissect its parts. Structure appears in the mind when we catch something like a static picture of it and then compare

and analyze the parts of that picture. Function appears in either body or mind whenever we perceive what it is doing, that is, its processes.

Any complicated structure or function seems more or less knowable as a whole. Apparently, however, no whole can exist without components, and to change any component changes the whole. It follows that, toward understanding any whole, we must analyze it into components to learn what made the components and how they contribute to the whole. Thus we analyze structures into parts, elements, and relations between them; and we analyze functions or processes into part-processes, elementary processes, and their relations. Finally, since the total pattern of relations between the components, the organization of the whole, is distinctive, to understand the whole we must also view it synthetically and even appreciatively.

So considered, every society, every organism, and every active component of an organism is a functional structure. Also, every component may be considered as a whole; and every whole a component of a larger whole, up to the largest, which is the universe.

Though some functional structures are more easily distinguishable than others, and some are more isolable than others, all are equally real. Not all, however, are equally important. Likewise, any whole and its parts are equally real; but for some purposes it is more important to consider the whole and for other purposes the parts.

These Concepts and Scientific Method

Some readers may object that integration, conformity, intelligence, and other concepts presented in this chapter are speculative or evaluative or both, hence useless for science. Every concept in science, however, is more or less speculative and evaluative. The scientist, like the primitive thinker, tries to perceive, explain, and know how to deal with whatever interests him, whatever seems important; and all constructive thinking involves guesses, hypotheses if not myths, and evaluations of quality, quantity, direction and significance. The scientist's guesses, hypotheses, and evaluations are merely more enlightened, based on more highly developed observation, reflection, and interest. Thus the primitive thinker works out a way to corral all his cattle; and the scientist, to arrange all his facts. The primitive tries to explain his cattle, their origin and functioning; the scientist, to explain his facts. The primitive is interested in his food supply; the scientist, in objective truth, and likely in its possible applications.

Ideal, guiding concepts like straightness, circularity, purity, health,

integration, intelligence, truth, beauty, and goodness emerge or develop naturally as means to understanding, mastery, and enjoyment.

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5

A Survey of Motivation

... May we not hope that philosophy, if cultivated with care, and encouraged by the attention of the public, may carry its researches still farther, and discover, at least in some degree, the secret springs and principles, by which the human mind is actuated in its operations? ... How far these researches may possibly be carried, it will be difficult for us, before, or even after, a careful trial, exactly to determine.

David Hume

Why does a person dream, worry, fear lightning or cats, hate unduly, react obsessively, steal, become queer, develop a psychoneurosis, or maintain or recover his mental health? From the point of view of dynamic psychology, to answer any such question is to state the person's motivation.

Definition of motivation. In popular speech, "motivation" often means little more than wishes, desires, and purposes. This is partly because the layman does not think much about our involuntary reactions. Etymologically, "motivation" refers to whatever makes us move. In line with the preceding chapter, however, we shall say that *motivation means any readiness to react; also the direct causes of the readiness.*

General types of readiness. Although readiness occurs in countless gradations and complications, the various instances of readiness seem classifiable as more or less active or passive, weak or strong, momentary

or persistent, general or localized in extent, general or specific in application, and conscious or subconscious (which includes involuntary and essentially physiological).

Active readiness is an internal pressure to react. Often, if not always, it involves incipient reaction. An example of active readiness is the angry man who is tensely eager to fight. He is like an engine with pressure up, in gear, and ready to run as soon as the brakes are released.

Passive readiness is an internal arousability by certain excitants. An example is the well-trained soldier who has obeyed orders all day, yet is ready to obey even unexpected and unenforceable orders in the evening; orders which an untrained and equally weary soldier would disregard. Here the trained soldier is like an engine ready to perform its function whenever the right positive influences befall it from without.

Weak, strong, momentary, and persistent are obviously relative and convenient descriptive terms.

General, in the sense of fully pervasive, readiness appears in the person who is fully awake, keyed up, and ready to react with all parts of him.

Localized readiness, comparatively speaking, is noticeable in a pianist who has kept on playing and is still able to play after drinking so much liquor that he can neither walk nor hold his head up. Localized readiness occurs also in automatic writing, obsessive acts which the individual cannot control, and the like. In normal persons, often one readiness is offset by some contrary readiness, so that the first readiness' reaction does not occur; yet that readiness may continue to await a chance to function.

General, in the sense of variously applicable, readiness is shown by a person who has a general desire for prestige. This desire can be aroused by any of several excitants associated with prestige and can be satisfied by gaining the prestige in any of several ways. (For the reader, context will differentiate between pervasively general and applicably general readiness.)

Specific readiness seems to derive from either some specific physiological condition or specific learning or both and to require a particular "outlet." For example, the underwater swimmer whose oxygen balance is reduced develops a specific readiness to breathe; and this readiness continues until he either gets oxygen or dies. Again, a person who has learned that to deliver a particular message to a particular person is all-important has developed a specific readiness; and, un-

less he learns otherwise or forgets, this readiness persists, often uncomfortably, until that message reaches that person.

Conscious readiness is evident when one goes to meet a friend or undertakes any deliberate activity.

Subconscious readiness accounts for ordinary breathing, automatic writing, obsessive acts, unremembered but effective posthypnotic suggestions, and so on.

Every form of readiness is essentially internal to the organism.

General Mechanisms of Motivation

Excitation and reaction. In applying the hypothesis of determinism, we take every psychological process to be a reaction determined ultimately by many factors, external and internal. Of these factors, the most directly causative of the reaction is excitation.

Excitation means any active readiness to react; also, the direct causes of that readiness.

Considered as *active readiness*, excitation may occur in one or more receptors, afferent neurons, nerve centers, efferent neurons, muscles, glands, or any combination of these. Thus excitation includes the "brain waves" recently prominent in neurological research reports; together with that pulsating functioning said to occur in many nerve cells in the gray matter without afferent initiation¹—functioning which is called "spontaneous," as its cause, whether injuries from isolating the tissue for experiment or changes in the stored energy in these cells or some other factor, has not been determined. Excitation also includes "tonus," the mild tension characteristic of living muscles, upon which the rhythms of contraction and relaxation necessary to the life of the organism play. This tonus, it seems, depends upon at least proprioceptive (muscle, tendon, and joint) stimulations, which cause nervous impulses circularly from the muscles themselves back to themselves.

Considered as the *direct causes* of active readiness, excitation includes not only stimuli, which affect various external and internal receptors, but also impulses communicated from a prior neuron in a series and biochemical and other agents which affect tissues, especially nervous tissues, otherwise than through receptors. Thus, injuries, chemicals, or electric currents which initiate in certain nerve fibers not merely

¹ Hudson Hoagland, Cold Spring Harbor Symposia on Quantitative Biology, 1936, 4:267; C. Ladd Prosser, *ibid.*, 339; Hallowell Davis, *ibid.*, 285 (Biological Laboratory, Cold Spring Harbor).

a single but a continuing, rhythmical reaction are forms of excitation.² Excitation appears also in the "distance action" through which activity in some neurons is reported to induce activity in other neurons; a means, perhaps, through which the cerebral neurons pulsate together in the "brain waves" already mentioned. Considered as the direct causes of active readiness, therefore, excitation may be either external or internal to the body.

A reaction is functioning caused by excitation.

Reactions include not only muscular and glandular responses but also neural activity itself. This means that the two terms, excitation and reaction, overlap to the extent that a given excitation may arouse a neural reaction which, in turn, is the excitation of a further reaction. This overlapping, however, seems necessary to express the causal series that obtains within the organism.

Connections. The various parts of the organism affect one another's functionings through various undifferentiated, chemical, and neural connectors. For the connectors to connect, we assume, they must contain through-ways, whether native or acquired, simple or complex. Such through-ways in the neural connectors we call paths. (Some neurologists think that recent findings disprove the notion of paths and support, instead, a "mass action" or "field theory" of neural conduction. Apparently, however, the same findings can be explained more simply by assuming complex systems of paths.) All the influences through connectors, and the ways for influences, we shall call connections. Thus, *a connection is an influence of one part upon another part's functioning; also a path or other way for such influence.*

Thus a connection is an influence or a through-way that is available now; it is not one that is past or that may be established in the future. A connection may, however, be *active* or *latent*, according to whether it is, at the moment, in use or not. It may also be relatively *weak* or *strong*. Moreover, it may be more or less *momentary* or *lasting*. The more lasting connections include (1) native connections and (2) associations. *An association is a learned connection.*

Patterns. Reactions and, we assume, the connections involved in reactions often have characteristic shapes. Thus, a smile differs in

² R. W. Gerard, Cold Spring Harbor Symposia on Quantitative Biology, 1936, 4:197; Hudson Hoagland, *ibid.*, 267.

shape from a pout, and a reaction of fear from one of general exultation; and each of these reactions would seem to involve a different alignment of connections. *A pattern is any reaction or any system of connections thought to have a characteristic shape.*

Descriptive Types of Motivation

"Motive," "determining tendency," "drive," "wish," and other terms of motivation are more or less overlapping terms and are variously used. We use them as follows.

Motive and determining tendency. *A motive is any readiness, especially any active readiness, to react.* Thus "motive" is a broad term, synonymous with "motivation" except that "motive" does not include the direct causes of the readiness.

A determining tendency is any persistent motive. Examples are persistent thirst, continuing anger, habitual obedience, and characteristic ambition.

Drive, urge, or need. *A drive, urge, or need is any persistent active motive.* This motive may be essentially physiological or psychological, though the most common emphasis of "drive" is physiological and a common emphasis of "urge" is psychological. Examples are the hunger drive and the urge to stock a kitchen.

Set and attitude. *A set is a specific motive.* A cat's set to catch a mouse makes it responsive to the mouse and not to catnip. A person's set to add figures makes him add instead of subtract them. His set to take offense whenever his stature is mentioned makes him quarrel with anyone who mentions his stature.

An attitude is a relatively characteristic and general motive. An attitude is thus more expressive of the personality than is a set, which may reflect only passing circumstances. Moreover, an attitude is general both in involving much or all of the individual and in being variously applicable. Attitudes include whatever general readinesses, native or acquired, are characteristic of a person; for example, submissiveness, and all his broader and deeper sentiments, expectations, intentions, wishes, desires, purposes, principles, and ideals.

Expectation and intention. *An expectation is an ideated set or attitude to experience something.* This means that the individual thinks

of having something happen to him in the future, either immediately or later, according to the case; and that he is ready to have it happen—ready not necessarily in the sense of being willing or glad, but in the sense of being prepared to experience it.

An intention is an ideated set or attitude to effect something. The individual thinks of making something happen in the future; and he is ready, in the sense of being prepared, to make it happen. He may intend to wave a greeting, say "Good morning," think kindly of his neighbor, work well, and so forth.

Naturally, expectation and intention may be combined; for example, one may expect pain but intend to disregard it; or one may expect to be bored, but intend to do one's best, and expect to be gratified by the outcome. As Gibson pointed out, however, expectation and intention work so differently that we should distinguish between them. Lund pointed out likewise that mere intention is simpler than purpose.³

Wish, desire, and purpose. *A wish is an ideated urge checked by contrary motivation.* In other words, there is a real urge which is thought of, yet some other motivation keeps that urge from being acted upon. For instance, one has an urge to eat some candy, also a contrary urge not to grow heavier; hence, one only wishes one could eat the candy. Likewise, one's urge to stock a kitchen quickly and luxuriously is checked by contrary urges to buy other things first. An urge to enjoy a fortune becomes a wish when contrary economic facts motivate one to react otherwise. Whenever the ideated urge is freed from such contrary motivation, the wish becomes a purpose, or a delusion, or a perception of fact, as the case may be.

"Longing" and "hope" are closely akin to "wish" in that they also are ideated urges whose overt expressions are prevented by contrary motivations. In longing, however, the contrary motivation not only stays but so stops the overt expression as to make the ideated urge seem relatively futile; and in hope, the contrary motivation merely stays the overt expression, allowing the urge to seem not so futile. Thus "wish" lies between "longing" and "hope" and, in usage, often includes them.

A desire is an earnest wish. Apparently, a wish becomes earnest when it involves some of the individual very intensely, or when it involves all of him more or less intensely.

³ Cf. James J. Gibson, *Psychol. Bull.*, 1941, 38:784, 804; Frederick H. Lund, *Psychology: The Science of Mental Activity*, 1927, 120 (Seiler).

A *purpose* is a desire with an ideated urge to instrumental reactions, that is, to reactions that will do away with the contrary motivation and will satisfy the original urge. For example, a desire to enjoy a fortune becomes a purpose when one combines that desire with an ideated urge to accumulate a fortune in this or that particular way.

Ordinarily, wishes, desires, and purposes are conscious; but in later chapters we shall meet evidence that any type of motivation can be subconscious.

How intentions, wishes, desires, and purposes may be explained, and how they affect behavior, will appear in the chapters on Thought and Action.⁴

Stimulus and incentive. A *stimulus* is an excitant of a receptor. Consequently, as suggested before, "stimulus" is a narrower term than "excitation." Like excitation considered as direct cause, however, a stimulus may be external or internal to the organism.

An *incentive* is an external situation that enhances a motive. Thus, the offer of a wage increase is an incentive to the worker to work better. A stimulus may enhance a motive likewise; but an incentive, being a "situation," is more complex than a stimulus and is always external to the organism.

A summary example. A man climbing a mountain on a warm day develops thirst, an excitation or active readiness to drink. This motive becomes a determining tendency, then a drive, an urge, to drink. The urge arouses a set to watch for some good water, an expectation to find it, and an intention to drink it. Soon the urge becomes a wish, indeed a desire, to find and drink such water. The desire grows into a purpose to find a spring. A rivulet coming from the right of the path induces a set to follow it up to its source; but a "No Trespassing" sign arouses a law-abiding attitude that keeps the traveler on his path. After he is well past the sign, a sound of running water stimulates him further. Soon a spring, evidently clean and available, becomes an incentive to drink. Free from contrary motivation now, he does drink until his excitation to drink is assuaged.

Genetic Types of Motivation

The sources of human motivation seem to be too many, too inter-related, and too little understood to permit more than a rough classi-

⁴ Chapters 15 and 16.

fication of the genetic types of motivation. Toward perspective, however, this classification seems useful.

Structural motivation. With motivation defined as any readiness to react, also as the direct causes of the readiness, it is obvious that motivation consists partly in *bodily structure*. Structure inclines the fish to swim, the bird to fly, the little man to avoid a wrestling match, and the big man to welcome it. Indirectly, also, through intermediary reactions, the little man's small physique may motivate him to various "compensatory" reactions. The big man's awkwardness may motivate him, too, to such reactions. Thus, directly or indirectly, structure accounts largely for everything that anyone does.

Each remaining type of motivation likewise motivates indirectly as well as directly; but we shall not emphasize the point for each type.

Biochemical, drug, and toxic motivation. *Chemical conditions within the body* profoundly affect reactions, either locally or generally through affecting the energy level. These chemical conditions depend upon such factors as body temperature; oxygen intake; nutrition in calories, minerals, vitamins, and fluids; elimination; glandular balance; basic reflexes; restedness; general health; stimulation; and integration. Besides ordinary biochemistry, various *drugs*, *poisons*, and *true toxins* affect reactions. Prominent among the drugs are alcohol, morphine, and strychnine. A common poison is lead. Of the toxins, some are endogenic, that is, developed by disease or disorder within the organism; while others, notably plant, insect, and reptile toxins, are exogenic, originating outside the organism.

Glandular motivation. Since the *duct glands* most important in motivation can be classified under what we shall call appetitive motivation, we shall suggest here the role of only the *ductless or endocrine glands*.

These glands seem to be multiple regulators that mutually interact. They account considerably for bodily structure; they affect the readiness of bodily structure to react; and, so far as we know, they may even provide stimuli for some reactions.

The pituitary gland produces hormones which regulate development of the skeleton and viscera, of the sex organs, and of the mammary glands. Overactivity of the pituitary during childhood makes the

child a giant. The thyroid's hormone regulates general growth and fat. Adrenal hormones regulate general and particularly sexual growth. Hormones from the male and the female gonads, respectively, induce the masculine and the feminine bodily characteristics. Some of the pituitary hormones also affect nervous irritability and intellectual and physical vigor. One of these hormones, prolactin, when administered to unmated female rats makes them adopt and mother large families of young. Too much thyroid hormone speeds up the individual generally; too little slows him down and may greatly debilitate his mental and physical powers. Adrenal secretion of cortin supports muscle tone. (Cannon's view of the role of adrenalin in emergency reactions was apparently erroneous.) Male hormone, when injected, makes baby chicks strut, crow, and fight, and makes female rats behave much like males. The same hormone makes men more self-confident, energetic, and aggressive, both sexually and in general. It is not clear how far such increased "maleness" results not merely from sexual but from general energization.⁵

Other hormones are important also; but the foregoing examples must suffice.

Appetitive motivation. Especially related to biochemical and glandular motivation is appetitive motivation. This term we take to include (1) alimentative factors like hunger, thirst, elimination, gastronomic contentment, distaste, disgust, and nausea; and (2) specifically sexual motivation.

Among *alimentative* factors, the hunger drive is more powerful than many well-fed persons realize. Commonly, men who have food work for other rewards; but when they cannot get it otherwise, they are likely to fight and steal to get food. Many a criminal career begins when an undernourished child steals food that he needs.

The organism needs various nutrients. Laboratory rats, when offered different foods, select mostly what they need. Children do likewise. Some children who have plenty of bread and potatoes steal money to buy ice cream, fruit, or other sources of minerals and vitamins.

Certain components of alimentative motivation seem important in themselves. Thus, chickens that have not been allowed to peck normally at the ground peck abnormally at each other; and calves, puppies and babies that get their food with insufficient sucking are most prone to suck others' ears or their own paws or fingers.⁶

Sexual motivation we shall take up in the next chapter.

⁵ Cf. PA 19 2187, 12 1272, 5250, 13 1375, 1400.

⁶ David M. Levy, *J. Gen. Psychol.*, 1938, 18:327-348.

Affective motivation. The noun "affect" means hedonic tone (pleasantness or unpleasantness), emotion, or hedonic tone and emotion together. Accordingly, the term "affective motivation" means whatever motivation is characterized by affect. Such motivation seems to involve, especially, biochemical, glandular, and appetitive motivation.

From the introspective point of view, the different kinds of affect are alike diffuse rather than localized and differ mainly in quality and intensity.

Hedonic tone, according to Beebe-Center, "varies in a single continuous scale from unpleasantness through indifference to pleasantness." On this scale, unpleasantness is called negative hedonic tone, and pleasantness positive hedonic tone. Hedonic tone depends partly upon the intensities, qualities, and patterns of stimulation and largely upon the structure, biochemical conditions, and other types of motivation, both native and learned, within the individual.⁷ Conversely, hedonic tone seems to affect biochemical and many other forms of motivation and, particularly, learning. Thus hedonic tone is important in motivation.

"*Emotion* is a 'moved' or stirred-up state of the organism."⁸ According to this definition, which seems as satisfactory as any, emotion is more strongly affecting than is hedonic tone and may even disordinate the individual.

Apparently the primal, least specialized, and most general emotion is excitement. As observed by K. M. Banham Bridges, the newborn infant's only emotion is excitement. Within the first few weeks this emotion differentiates into distress, excitement, and delight. At about the fourth month, distress differentiates into distress, anger, disgust, and fear. At about the ninth month, delight differentiates into delight, elation, and affection. During the second year, distress also gives off jealousy, and delight gives off joy.⁹

Taking account of Bridges' observations, also of those on emergency reaction by Cannon and by some of his critics, we classify the various emotions into two general types, (1) the emergency emotions, which occur when the individual feels severely hurt, thwarted, or threatened;

⁷ J. G. Beebe-Center, in *Psychology: A Factual Textbook* (Edwin Garrigues Boring, Herbert Sidney Langfeld, and Harry Porter Weld, eds.), 1935, 375 ff. (Wiley).

⁸ Robert S. Woodworth, *Psychology*, 1940, 417 (Holt).

⁹ George M. Stratton, in *Feelings and Emotions: The Wittenberg Symposium* (Martin L. Reymert, ed.), 1928, 218 (Clark Univ. Press); E. R. Guthrie, *The Psychology of Learning*, 1935, 105-107 (Harper); K. M. Banham Bridges, *Ch. Devt.*, 1932, 3:340; Walter B. Cannon, *Bodily Changes in Pain, Hunger, Fear and Rage*, 1929 (Appleton); Magda B. Arnold, *Psychol. Rev.*, 1945, 52:35-48.

and (2) the benign emotions, which occur when the individual is relatively contented.

The principal emergency emotions seem to make up a continuous series that is best divided into excitement, anger, agitation, and fear. (Disgust we take to be essentially an alimentative reaction; and jealousy, any emergency emotion complicated with reactions of watching or scheming against a rival. Elation, also scorn, astonishment, grief, and sadness, seem to involve emergency emotions together with other forms of motivation.) The causes of the principal emergency emotions and of most of the others mentioned we shall consider in the chapter on Reactions.¹⁰

The several emergency emotions involve, in various degrees, important changes in adrenal-cortical, adrenal-medullar, insulin, glycogen, and other secretions; circulation; respiration; blood composition; quickened clotting of the blood when exposed at wounds; muscle strength; fatigue; erection of hair; and sweating. That these emotions greatly affect appetite, disposition, learning, thought, action, and personality is well known.

The benign emotions are perhaps more difficult to single out, because they seem to shade into mere pleasantness or positive hedonic tone, into bodily sets and attitudes, and into other processes; also, when really emotions, to implicate some emergency emotion. Still, it seems well to distinguish, as principal benign emotions, tender emotion (as in parental, filial, or fraternal love), delight, and joy. The causes of these emotions are obscure, though we shall have something to say about them in that same chapter. The effects of the benign emotions are subtle, pervasive, and often marked.

Apparently every emotion involves hedonic tone. Hedonic tone, however, occurs also apart from emotion, or at least from any considerable emotion.

The differences between hedonic tone and emotion, and the differences between the various emotions, show that "affective motivation" is a name for a collection of types of motivation. Consequently, when we come to consider these same processes as "reactions," we shall take hedonic reactions and emergency emotions as separate categories and benign emotions as blends from those and other categories.

Basic-reflex motivation. Closely bound up with all the foregoing types of motivation, yet worth special emphasis, is motivation from basic

¹⁰ Chapter 7.

reflexes. Circulatory and respiratory changes, tonus, shivering, crouching, straightening, and like reflexes obviously enter into motivation.

Sensory motivation. Much motivation derives from stimulation of receptors. *Nociceptive* motivation involves the sense of pain. This most potent form of sensory motivation is almost universal. Many persons, however, become psychoneurotically defective, and apparently some are born defective, in this sense (G. V. N. Dearborn, 1932). *Interoceptive* motivation derives from biochemical, appetitive, affective, glandular, and other internal conditions, in so far as these excite the interoceptors (receptors in the viscera). *Proprioceptive* motivation comes from physical pressures and tensions, and possibly fatigue, temperature, and other changes, that affect the proprioceptors (receptors in muscles, tendons, and joints, and in the vestibules and semicircular canals of the inner ear). *Exteroceptive* motivation comes from light, sound, temperature, and other stimulation of exteroceptors (receptors at the outside of the body). (These several terms come from the Latin roots *capere*, take; *nocere*, hurt; *inter*, amidst; *proprius*, one's own; and *exter*, outside.)

Native and learned motivation. Native and learned motivation are not sharply separate, since much motivation is partly native and partly learned, and all motivation occurs upon some native basis. Properly interpreted, however, the distinction between these two types of motivation seems useful.

Native motivation, like anything else that is native, is "determined by germinal factors plus normal environmental conditions"; in other words, it would be different were heredity different, and it does not reflect peculiar environmental or cultural influences.¹¹ Under native motivation come all the types already mentioned so far as these do not reflect such peculiar influences; all neural or other functional maturation that occurs apart from special learning; and whatever instincts, complicated native patterns, there may be, including, as David Camp Rogers suggested, any strong native predispositions to learn particular, complicated patterns.¹²

Learned motivation is determined by germinal factors plus special experience. Under learned motivation come all conditioned reflexes,

¹¹ Cf. Wesley Raymond Wells, *Psychol. Rev.*, 1923, 30:228-234; and for an example, PA 15 181.

¹² Unpublished lectures.

habits, and learned sets, attitudes, perceptions, and other acquired patterns—since every pattern is at least a passive readiness to react.

Miller has shown that rats which have been fed all they seem to want can be aroused by food-conditioned stimuli to learn a new way to get food and then to eat the food. Human examples are not far to seek.¹³

Complicated motivation. Given such various sources, it is not surprising that human motivation is often highly complicated. A man may drink liquor because of thirst, habit, sociability, and unpleasant problems that he wishes to escape. A girl may become a prostitute from sexual excitation, curiosity, the wish for fine clothes, the desire to prove that she is attractive, and rebellion against a domineering stepmother. A youth may steal because of animal hunger, a need to feel bold and clever, and a desire to please and impress the other members of his gang. A person may do good deeds to gain favors, approval, and self-assurance, also to help other persons now and to advance a principle which can benefit mankind.

All one's motives at a given time are likely to stand in a hierarchy; and when the most dominant motive is satisfied, the next one urges its claim.

There are different hierarchies from person to person and from time to time.

Not all one's motives are equally conscious. In some abnormal cases, as we shall see in later chapters, subconscious motives can guide behavior even against conscious motives.

Owing to intrusions from various motives, conscious or subconscious, a given motive does not always set off the same action, and a given action does not always come from the same motive.¹⁴

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¹³ Cf. R. S. Woodworth, *Dynamic Psychology*, 1918, 104 (Columbia Univ. Press); K. S. Lashley, *Psychol. Rev.*, 1924, 31:201; Neal E. Miller, *Psychol. Bull.*, 1941, 38:534-535.

¹⁴ Cf. PA 17 3751, 23 1880, 9 3254, 13 3324, 16 2981; Robert W. White, *Lives in Progress*, 1952, 227 ff. (Dryden).

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Affective motivation: William A. Hunt, in Edwin G. Boring and others, *Foundations of Psychology*, 1948, 90-111 (Wiley); PA 8 2923, 16 1877.

Sensory motivation: PA 25 3614.

Native motivation: Otto Klineberg, *Social Psychology*, 1940, 55 ff. (Holt).

6 | Special Topics in Motivation

Human beings do not all feel and act alike in the same circumstances; but it is possible to determine what makes one person, in a given position, feel or act in one way, another in another; how any given mode of feeling and conduct, compatible with the general laws (physical and mental) of human nature, has been, or may be, formed.

John Stuart Mill

After the foregoing survey, we need to consider several kinds of motivation which seem most commonly misunderstood or overlooked.

Sexual Motivation

One of the most seriously misunderstood motivations, in our civilization at least, is sexual motivation. Often this kind of motivation is called, simply, sex.

Why sexual motivation is much misunderstood. Sex is naturally such a strong, recurrent motive, even before physical and mental maturity, and is so freighted with actual and potential values and disvalues, that it usually enlists more thinking for or against than about it.

For the individual, sex is potentially good, both in itself and for family life and larger group interests; yet this same motive often runs against keen desires for health, security, wholehearted affection, fair play, others' welfare, and social approval.

For the group, sex is a *sine qua non* for continued life and for quantity and quality of population. It occasions such important mores as segregation of the sexes, courtship, marriage, family life, and inheritance. When unregulated, however, it may disrupt families, harm the immature, spread disease, burden the weak, multiply the incompetent, and, relative to economic distribution at any rate, cause overpopulation.

Sexual motivation has been restrained largely by unreasonable methods. Much of our civilization is influenced by the primitives' ideas that sexual asceticism prevents weakness from contact with weak womankind, avoids the envy of the gods, and stores up generative power for the tribal crops, herds, and population. For centuries, also, sexual expression other than for procreation has been forbidden by military leaders who want men to be restless for fight and by theological leaders who want them to be otherworldly rather than too domestically content.¹ That same background of taboos has fostered the convention that sexual expression is unrefined; also the notions that all asceticism increases physical and mental power, that all sexual motivation comes from attention, and that all this motivation can be "sublimated through more wholesome activities."

In countless instances the restraint fails, in thought at least. Many individuals appeal to priests and physicians for help. Traditionally, these mentors encourage further restraint and likely urge "sublimation" of the forbidden motive.² Within certain limits, any undue fatigue from these efforts makes for further failures in thought if not in deed, in adult males at least. Also in adult males, the failures, and the restraint if attempted on a twenty-four-hour basis, draw attention to the forbidden motive. Within limits which are not commonly recognized, attention does aggravate the motive. Consequently, the beset individuals try to disregard the motive. Failing in this, they may give way to it, or give way under it, or seek enlightenment.

Until recently, there has been comparatively little enlightenment about sex. There has been some sex instruction, both official and unofficial. The official kind was intended to keep the young in the way in which they were supposed to go. Much of this instruction has been presented "in a modest way," that is, in the half-light of taboos, and has been prejudiced, partial, and even erroneous. The unofficial kind was produced clandestinely to tell the young what they wanted to know.

¹ Cf. W. S. Taylor, *Genet. Psychol. Monog.*, 1933, 13: No. 1, 52n.

² Cf. Geoffrey May, *Social Control of Sex Expression*, 1930 (Morrow); Taylor, loc. cit., 8-13, *Encycl. Sexualis*, 3-6.

Most of this kind has been presented in a ribald way, that is, in a spirit of truancy from the taboos, and has been correspondingly prejudiced, partial, and often erroneous. Thus the young have been given two general impressions about sexual motivation as such, one that it is bad under any conditions, and another that it is good under bad conditions. Naturally, these impressions conflict with each other and with normal impulse, judgment, and idealism.³

The sexes have been brought up largely apart. This has inclined them variously to overvalue and undervalue each other as potential mates and has not encouraged mutual understanding about any common interest. Where the sexes have been brought up together, often they have been expected to study the same things in the same way. Perhaps this system, too, has prevented sound mutual evaluations and understanding.⁴

The conflicts and unenlightenment about sex have made many people more or less abnormal in their sex attitudes, also, compensatorily, in their alimentative, tender-emotion, esthetic, or other reactions. Those who become overtly sexually abnormal are feared, hated, and punished rather than treated. In all persons except the overtly sexually abnormal, sexual adjustment is supposed to occur automatically upon marriage. Any failures in this adjustment are commonly misinterpreted and often obscured by further marital maladjustments or compensatory developments or both. Thus many adults are abnormally prejudiced against enlightening the next generation.

Under modern social conditions, this generation finds some enlightenment about sex, but little about ethics. Naturally, many of this generation resent the previous lack of enlightenment about sex but overlook the lack of enlightenment about ethics. If they think about ethics at all, they tend to confuse ethics with theology or with convention. Consequently, many of this generation either overvalue sex, perhaps taking it to be the only real source of marital and personal happiness, or cheapen sex, so losing its reinforcement for familial and other social interests. Either error leads to conflicts with other motives.

Freud turned up many of these facts. As academic psychology seemed remote from them, he avoided it and presented his picturesque view

³ For an extreme example, cf. Constanica de la Mora, *In Place of Splendor*, 1939, passim (Harcourt); and for a contrast, Mary Ware Dennett, *The Sex Side of Life: An Explanation for Young People*, 1927 (Mrs. Mary Ware Dennett Publications, 32-49 56th St., Woodside 77, N. Y.). Cf. also A. B. Hollingshead, *Elmtown's Youth*, 1949, passim (Wiley).

⁴ Cf. Amram Scheinfeld, *Women and Men*, 1944 (Harcourt).

which was outlined in Chapter 3.⁵ We know that many physicians and other leaders objected strongly to Freud's view at first. Freud said they objected because they suffered from traditional and abnormal prejudices. No doubt many of them did suffer from such prejudices; but some must have objected because they realized that Freud's view, while pointing to important facts, uses terms misleadingly, generalizes absurdly, and obscures other important facts. Nevertheless, many psychiatrists, sociologists, social workers, popular writers, and intellectual laymen accepted Freud's view. This may have made many persons more open-minded than clear about sexual motivation.

Sexual motivation delimited. Freud's view has stimulated other students to develop a more reasonable interpretation of sexual motivation. The interpretation which follows derives much from Freud and much from others.⁶

The human infant has a number of natively pleasurable motivations, such as eating, cuddling, being stroked, being tickled slightly, having genitals excited either from within or from without, exercising, laughing, and so on. Freud calls all of these motivations sexual. It is true that all of them are pleasurable, also that they readily reinforce one another and become combined into patterns; but that does not make all of them intrinsically sexual. They often function separately, hence should not be confused with one another. The genital motivation is sexual. In so far as oral, nasal and other tissues are affected natively along with genital reactions, they may be considered a part of the reproductive system and are to that extent sexual.⁷

Sexual motivation means, essentially, motivation of the reproductive system toward tumescence, secretion, and orgasm. This motivation is native. Apparently, in mature healthy males, it can neither be sublimated nor inhibited altogether but functions recurrently, if only during sleep.⁸ Whether it functions recurrently likewise in females is not clear.⁹

⁵ Cf. Sigmund Freud, *Autobiography*, 1935, 54 (Norton), and *The Problem of Lay-Analyses*, 1927, 17, 87, 139, 47-48 (Brentano), PA 23 3650.

⁶ References in W. S. Taylor, *Morton Prince and Abnormal Psychology*, 1928, 131 (Appleton), *Genet. Psychol. Monog.*, 1933, 13:No. 1, 102-109, *Encycl. Sexualis*, 1936, 6.

⁷ Cf. PA 24 6464.

⁸ *Genet. Psychol. Monog.*, 1933, 13:No. 1.

⁹ Clinical reports of women's "complete inhibition of the sex instinct over many years" (e.g., Morton Prince, *The Unconscious. The Fundamentals of Human Personality Normal and Abnormal*, 1921, 334, 461-467, Macmillan) seem not to exclude possible releases during sleep; and studies of sex expression in unmarried women (references in *Encycl. Sexualis*, 1936, 6) are based on incomplete, hence perhaps unrepresentative, returns from samplings of the population.

By extension, sexual motivation means *motivation of patterns of reaction which include the reproductive system*. Among such broader patterns are narcissism, homosexuality, sadism, masochism, prostitution, sexual love, courtship, and marriage. Although the essential sexual reactions are native, we shall meet evidence that many of the inclusive patterns are learned, and that all of the inclusive patterns are so readily shaped by learning that, for practical purposes, they may be considered learned.

Sexual development. Captive apes and monkeys freely masturbate, and copulate with members of their own sex both old and young, with members of the opposite sex both old and young, and, when not afraid, with other species of animals regardless of their sex—one male monkey, indeed, tried to copulate with a four-foot snake. Even in the wild state, they seem to be homosexual, monogamous, polygamous, polyandrous, and promiscuous, according to opportunities.¹⁰ Human beings likewise show various sexual trends, often conventionally, in diverse cultures, but also often unconventionally when “normal” restraint is removed. Thus, many drinking songs express sexually perverted trends; psychotic illnesses often uncover similar trends; and certain cases of multiple personality show different “selves,” some of which are sexually abnormal.¹¹

To the Freudians, such observations imply that the various “normal” and “abnormal” trends alike are native components in every person; that they persist within every person; and that a sexually “normal” person is merely one who has been able to control the several components as society requires.

The same observations, however, together with observations of psychotherapy, make it seem more likely that the sexual motivation of apes, monkeys, and human beings is not natively so complicated, but is relatively *indiscriminate*; and that, as individuals mature, they learn to discriminate between various potential sexual objects, according to environmental circumstances. In the same way, a baby is indiscriminate about what he puts into his mouth; but, normally, he learns to discriminate between balls, pencils, bananas, books, sandwiches, the food that is his, and the food that is reserved for someone else.

The sexual perversities that appear in drinking songs, in psychoses,

¹⁰ G. V. Hamilton, *J. Animal Behav.*, 1914, 4:295-318; Gerrit S. Miller, Jr., *Quar. Rev. Biol.*, 1931, 6:379-410.

¹¹ Cf. Weston La Barre, *Psychiatry*, 1939, 2:212; Taylor, *Readings*, 304-306, 409-420.

and in multiple personalities would seem to express obsolete conventions, reaction against all current conventions, and, in many individuals, failure to learn to discriminate normally. Countless ordinary persons, and many who become intoxicated, or become psychotic, or develop multiple personality, seem to have attached their sexual tendencies wholly to suitable members of the opposite sex. Indeed, many ordinary persons, and some of those who become intoxicated or otherwise mentally abnormal, seem to prefer a monogamous relationship.¹²

The normal human infant has sexual motivation in the narrow sense, that is, toward tumescence, secretion, and orgasm, even though he achieves only tumescence. Usually, he learns to meet this motivation by self-manipulation. Consequently, he may associate the motivation with his own body and become narcissistic, sexually attracted to himself. As his experience grows and he reasons and fantasies, he associates his sexual motivation with outside objects, even with some particular person or persons. On the other hand, judging by some accounts, he may become so occupied with other interests that he is almost unaware of sexual motivation until he approaches puberty.

With puberty, if not before, the more inclusive sexual patterns begin to take shape. If segregated with his own sex and misguided, the youth may associate his sex urge with bodies most like his own and so become homosexual. If he grows up through wholesome coeducational schools and play groups, he likely becomes heterosexual without ever having been homosexual. In either case, ordinarily, current adult customs and attitudes work to associate his sexual motivation eventually with the opposite sex, so that he becomes heterosexual or even monogamous.¹³ (This does not mean that there is no native predisposition to heterosexual adjustment. It means only that the inclusive sexual patterns are so readily shaped by learning that, in effect, they are learned.) Thus, like the baby learning alimentative discrimination, the normal individual learns sexual discrimination. Apparently both kinds of discrimination make for health and happiness.

Whatever the sexual pattern learned, the individual may associate it with some special values, such as proof of his own vigor, or solace for disappointments in other fields. Consequently, his sexual pattern

¹² Cf. Frances M. Strakosch, *Factors in the Sex Life of Seven Hundred Psychopathic Women*, 1934 (State Hospitals Press); W. S. Taylor and Mabel F. Martin, *J. Abn. Psychol.*, 1944, 39:289-290.

¹³ Cf. Floyd Henry Allport, *Social Psychology*, 1924, 67 ff. (Houghton Mifflin); E. B. Hurlock and E. R. Klein, *Ch. Devt.*, 1934, 5:63-80.

may become so attractive to him that he sacrifices other values to it. Or he may associate with it special disvalues, such as feelings of personal unworth and disapproval regardless of ethical circumstances. So long as he cannot free his sexual motivation from such disvalues, he cannot live an integrated life.

The question of "the oedipus complex." Freud's "oedipus complex" is a cultural complication. Naturally it develops in a boy who is made to feel that he can love and be loved by none but his mother, especially if the father seems to monopolize the mother and neglect the boy or to threaten the mother so that the boy is moved to protect her. In other cultures, we see quite different "family romances"; for example, in certain matriarchal societies, owing to the system of inheritance and other social conditions, the boy grows up to be jealous not of his father but of his oldest maternal uncle.¹⁴ Where no such special influences befall a boy, but where he has what we should call a normal emotional development, he loves his parents and others and seems to grow up without any particular family complex.¹⁵

Homosexuality

Definition and phenomena. As suggested in the previous section, *homosexuality is sexual motivation toward the same sex*. Unlike some current usage, this definition distinguishes homosexuality from normal sociability, friendliness, and even affection.

A few individuals are drawn sexually to other individuals apparently regardless of their sex. A few are drawn to very masculine men and to very feminine women alike. Many are homosexual only when isolated from the opposite sex. Some, regardless of opportunity, are homosexual by spells. Some are consciously heterosexual but subconsciously homosexual. A very few have several more or less distinct personalities, of which one or more are heterosexual and one or more are homosexual. Still other individuals seem completely homosexual.

Regardless of the degree or form of homosexuality, some homosexual men are virile, and some are effeminate; and some homosexual women are feminine, and some are mannish. Where a homosexual pair live together, whether they be males or females, the stronger of the two is

¹⁴ Cf. Bronislaw Malinowski, *Sex and Repression in Savage Society*, 1927 (Harcourt); H. Banister, *Psychology and Health*, 1935, 46 ff. (Macmillan).

¹⁵ Cf. Robert S. Woodworth, *Psychological Issues: Selected Papers*, 1939, 4-5 (Columbia Univ. Press).

likely to assume the masculine role in dress, speech, manners, and division of labor, while the weaker is likely to assume the feminine role. Such specialization is not invariable, however; some homosexual pairs are composed of individuals who will abide no characteristic of the opposite sex, and some are composed of individuals who seek to avoid every characteristic of their own sex. Nor are these affairs always "monogamous"; there are "Don Juans" among homosexuals as elsewhere.

In our culture, homosexuality is most noticeable among the sexually segregated, among those who have come to fear the opposite sex, and among those who have been misled by homosexuals. In some cultures, large groups of the population have been brought up successfully to be homosexual; for example, in ancient Greece and among certain Amerinds.¹⁶

Attitudes toward homosexuality. Many individuals who discover homosexuality in themselves resist and outgrow it. Others struggle on until they either surrender to it, or break down, or acknowledge the tendency in themselves and restrain it for ethical reasons,¹⁷ or find suitable therapy.

Together with those who have been brought up to be homosexual, those who surrender to homosexuality often seek to justify their state. They point with pride to the homosexual Plato (overlooking the heterosexual Aristotle). They take themselves to be finer grained than the common breeding herd, more able to understand both sexes, and fitted not to reproduce themselves physically but to contribute to culture, or to enjoy culture,¹⁸ or merely to prey upon the general population. They tend also to institutionalize their tendency, that is, to become an exclusive club, with various safeguards against the hostile public.

Besides those homosexuals who restrain themselves ethically, a number of others seek to protect from homosexual influence all persons whom they think are or may become heterosexual. On the other hand, a number seek to convert persons to homosexuality, or at any rate to seduce victims for a while; apparently to gain not only sexual satisfaction but also encouragement through numbers, and perhaps revenge upon society.

¹⁶ Cf. Havelock Ellis, *Studies in the Psychology of Sex*, 1915, 2:173-179, 10-21 (Davis) (Ellis, however, considers homosexuality essentially congenital); Edvard Alexander Westermarck, *The Origin and Development of Moral Ideas*, 1906, 2:467 (Macmillan).

¹⁷ Cf. Anomaly, *The Invert and His Social Adjustment*, 1929 (Williams and Wilkins).

¹⁸ Cf. Radclyffe Hall, *The Well of Loneliness*, 1929 (Covici).

For on the whole, our society has been hostile and often cruel to homosexuals.

Overtly homosexual men are ostracized and often punished, either legally or illegally. Legally, they are subject to various penalties. Illegally, many an adventuresome fellow, upon being accosted by a homosexual, conscientiously leads him on, knocks him senseless, picks his pockets, and leaves him. Sometimes an ordinary citizen is accosted by a homosexual in some public place, knocks him out, explains to the policeman whom the disturbance has called, and is thereupon dismissed with the words: "It's too bad you didn't kill him."

Overtly homosexual women, also, are made to suffer, socially and economically if not otherwise.¹⁹

Exceptions to this hostile attitude appear among those who consider homosexuality a disorder to be restrained and, if possible, cured.

Explanations of homosexuality. Various writers and practitioners have urged that homosexuality is a congenital abnormality.²⁰ Others have considered it largely, if not wholly, psychogenic.²¹

To be sure, gonadal and other basic differences between individuals occur within each sex. Some individuals remain physically immature; some have genitals not adapted to mating; some have marked secondary physical characteristics of the other sex; and perhaps no one is wholly male or female.²² Human beings are so educable, however, that we should expect many a person who finds himself not accepted as an adult member of his own sex to adopt the ways of immaturity or of the other sex. Since, too, normal individuals can be made homosexual by special psychological circumstances, it would seem that physically anomalous individuals could be brought up successfully to be heterosexual.

Consequently, for practical purposes at least, we take homosexuality to be a learned reaction, a psychogenic disorder.

¹⁹ Cf. Donald Webster Cory, *The Homosexual in America*, 1951 (Greenberg); the fictitious, yet typical, Radclyffe Hall, op. cit.; Lillian Hellman, *The Children's Hour*, 1934 (Knopf). Cf. also George W. Henry, *Sex Variants: A Study of Homosexual Patterns*, 1941, 1:xiii-xv (Hoeber).

²⁰ Anomaly, op. cit.; Radclyffe Hall, op. cit.; Lillian Hellman, op. cit.; Joseph Collins, *The Doctor Looks at Love and Life*, 1926 (Doran); Encycl. Sexualis, 1936, 321-334.

²¹ E.g., Bramwell, *Hypnotism*, 1921, 209 (Rider); McDougall, *Outline of Abnormal Psychology*, 1926, 321-330 (Scribner); PA 4 3063, 3449, 7 2324, 8 4815, 5035, 14 2988, 15 4229, 21 3527, 22 5022, 24 4699, 6407.

²² Cf. PA 16 2734, 19 2218.

Examples of the psychogenic explanation. Homosexuality has flourished in some ships, some schools, and some dormitories more than others, even when individuals were assigned to the different places arbitrarily, without selection. Thus erotic differences between groups can be caused by local traditions.

A girl who was an only child lost both her parents in her early 'teens. Before she was twenty-one she married, was disillusioned in her husband, and was left a widow with an unborn child. For companionship, she wanted the child to be a girl. When the child turned out to be a boy, she pretended he was a girl. She kept him in curls and girl's clothes until the school authorities insisted otherwise, and she continued to foster feminine traits in him. His schoolfellows called him "Sister" and badgered him so unmercifully that he played only with girls or at home alone and was good company for his mother. When he grew up, a somewhat older man led him into a homosexual relationship, which lasted until the older man was drafted into military service. The young man was then thrown with several heterosexual fellows who good-naturedly brought out his latent athletic ability and manliness, and even maneuvered him into a heterosexual affair. With no formal therapy whatsoever, he perceived that his emotional development had been cramped and distorted but could change; and he became and has remained a normal person.

A young man asked whether hypnoanalysis (analysis through hypnosis), which he had read had cured certain war neuroses, could help him. He said that, a year before, he and three other seniors at a men's college had been caught in a homosexual orgy and had been expelled from the institution. Two of the men had since committed suicide; one had left the country; and he himself had left home and was living homosexually with an older man, to whom he was giving all his money. He had never felt attracted to any girl, but had been strongly attracted to boys and men, and had had many homosexual relationships. Indeed, girls were so unattractive to him that, at social affairs, he could scarcely attend to what they said; he could not remember their names; and afterwards, he could not recall any of their names or faces, though he remembered the men perfectly.

Three three-hour hypnoses within two days brought out this story, much of which he had repressed: From his earliest childhood he idolized his mother. Her attitudes made him feel that nice women are antisexual. While he was still small, a servant woman used him sexually under revolting circumstances. This made him feel that sexual women are revolting. At a boys' school, his sexual interest was satisfied pleasantly through a *sub rosa* tradition of homosexual practices. After puberty, he joined a fraternity. One evening, after drinking considerable

beer, and while singing with his fellows in a moonlit garden, he fell in love with another youth. This was the first of a series of homosexual loves which led up to his present enthrallment.

In the last hypnosis, and again after having been awakened with full memory for the hypnoses, he was told *explicitly* how he had been deceived about his mother's real emotional nature; how he had generalized unfairly from the servant woman; how he had been impressed unduly by his homosexual experiences; how, for a natively normal man like himself, only a woman is most fully lovable; how he could revise his own history, in effect, through deliberate imaginary practice, beginning with his childhood and meeting each historical incident with a new, constructive reaction; and how he could fall out of love with his own sex and into love with the opposite sex through deliberate actual practice.

He undertook the task. He revised systematically his own previous reactions; he broke away from the older man; and he set out to associate girls with all that was pleasant in his life. For example, being fond of music, art, poetry, canoeing, and walks in the hills, every time he followed one of these interests he got some pleasant girl to share it with him. He sought also to understand girls, to sympathize with them, and to feel their relation to the larger scheme of life, biological, cultural, and personal. Within a year, he reported that he had become wholly heterosexual.

Many a person, at some time or other, finds himself drawn sexually toward an individual of the same sex who reminds him, subconsciously, of some thrilling member of the opposite sex. One man was drawn thus toward a very masculine but small, dark Spanish man who taught dancing. The barest analysis revealed that this dancing-teacher had reminded him subconsciously of a small, dark girl with whom he had fallen in love, whose name was Spanish, and who had offered to teach him to dance, but whom he had avoided because of a difference in religion. Another man was drawn likewise toward a tall, red-haired man who, as it developed, strongly resembled the red-haired mother of two boyhood playmates, a widow who he had wished would not age, so that he might marry her when he grew up. Neither of these men had been homosexual before; both were without female companionship at the time; and both were freed when they understood the sources and began to cultivate some female companionship.

In all of these cases, also in more complicated types into which we shall not go here,²³ the homosexuality seems essentially learned.

²³ E.g., *Encycl. Sexualis*, 1936, 337-342.

"Masculine," "feminine," and integration. In this connection the questions arise, What do "masculine" and "feminine" mean? Do they not mean different things in different cultures? And how do the qualities indicated relate to integration?

Undoubtedly, the conceptions of masculine and feminine differ from culture to culture; for example, in one culture masculine means masterful, and feminine means submissive, while in another culture these meanings are reversed.²⁴ Within any given culture, masculine and feminine seem to be learned developments upon the native differences between the sexes. The point for any individual's integration, however, is that integration cannot be maintained when the individual's personal masculinity or femininity actually conflicts, within him, either with his native capacities or with his milieu. Thus, if a girl dresses, talks, exercises, chooses companions, and organizes her whole life so mannishly that she both wears herself out and pointlessly disassociates herself from her milieu; and if she vaguely realizes that her personal pattern is not congenial to her real needs, yet tries to persuade herself that she is living most intelligently; she suffers from conflict within herself and is self-deceived, hence is not well integrated. Within each sex there remains large room for true individuality, which implies integration.

Heterosexuality and integration. Heterosexuality relates to integration likewise. True, in many cultures, some individuals have been set apart from family responsibilities to contribute to the common good; variously diversified individuals can make for a rich and diversified civilization; and such a civilization enriches the individual—otherwise, we assume, it is not a civilization. On the other hand, much social richness and diversification come from the division of the sexes, with their natural specializations in industry and even in culture (the physically harder lines, at least, falling to men). It seems, too, that civilization may gain more in the long run from having the ablest individuals reproduce themselves rather than die out through wholly individual contribution to the common good. Under *reasonable* socio-economic conditions (which we cannot here undertake to define), family life tends powerfully to integrate the individual; especially, the intimate cooperation, emotional, physical, social, economic, between husband and wife, to which their physical and mental endowments conduce, is

²⁴ Cf. Georgene H. Seward, *Sex and the Social Order*, 1946 (McGraw-Hill).

found by many to be most satisfying, and therein integrative. Even to contribute to family life indirectly, through social work, government, science, education, art, recreation, is highly integrative. Well-integrated individuals can contribute best to civilization.

Sadism

Some students think that sadism is an important motive in various vocations, recreations, mental disorders, and such social phenomena as crime, prize fights, and war.

Definition of sadism. *Sadism is sexual enjoyment of another's suffering*, whether the suffering be physical or mental.

Just as some current usage would make *any* motivation toward another person of the same sex "homosexual," some current usage would make *any* enjoyment of another's suffering "sadistic." Indeed, some usage would make any domination "sadistic." Many cases of enjoyment of another's suffering, however, also many cases of domination, seem plainly nonsexual. Examples are ordinary "sweet revenge"; torture to control a villain; the undersized Napoleon's obsession to dominate the earth; and an explorer's domination of his mutinous bearers by holding a gun at the head of the leader until they complete their journey. A two-year-old boy who enjoys tossing his rubber ball onto a cement walk may enjoy still more tossing his kittens on a hot stove, not for their suffering, which he does not appreciate, but for their antics. It seems clearest to call these various nonsexual cases by their usual names, "vengeful cruelty," "necessary cruelty," "compensatory domination," "necessary domination," and "fascination," and to reserve the term "sadism" for *sexual* enjoyment of another's suffering.

Excitation from diffusion distinguished from sadism. Hamilton observed that a pair of monkeys, caged together alone, soon lost sexual interest in each other until the male, by twisting the female's eyelids or otherwise torturing her, periodically refreshed their mutual sexual attraction. Hamilton likened these monkeys to certain married couples who so "get on each other's nerves" that sexual relations lapse until, every now and then, they have a grand quarrel, after which they are drawn to each other passionately anew.²⁵ In the sex affairs of the young

²⁵ G. V. Hamilton, *An Introduction to Objective Psychopathology*, 1925, 324 (Mosby).

unmarried Mundugumor, "the element of time and discovery is always present, goading them toward the swiftest possible cut-and-run relationship." It follows that these affairs "are sudden and highly charged, characterized by passion rather than by tenderness or romance. . . . Foreplay in these quick encounters takes the form of a violent scratching and biting match, calculated to produce the maximum amount of excitement in the minimum amount of time. To break the arrows or the basket of the beloved is one standard way of demonstrating consuming passion; so also is tearing off ornaments and smashing them if possible."²⁶ Among our own people, many a lover says, "I'll squeeze you to death," and gently bites his beloved.

Although such observations suggest that sadism is native, the same observations can be explained better, perhaps, as follows:

Caged monkeys, and socially and intellectually restricted married couples, naturally become bored. Boredom, fear of discovery (as among the Mundugumor), conscientious scruples, fatigue, and various other conditions inhibit sundry reactions, including, within certain limits, sex reactions. As Pavlov showed, however, inhibited reactions are often *disinhibited* by excitement (an emergency emotion) or other diversion.²⁷ Moreover, excitement may generally motivate the organism through diffusion, that is, through spread of excitation to various parts of the body. For example, male infants, when startled experimentally by revolver shots, or when their sucking reactions are thwarted, often become emotionally upset, muscularly active, and have erections; and some school children, when worried about their examinations, become sexually stirred.²⁸ Conversely, great sexual or other excitation may diffuse to produce extraordinary reactions of squeezing, biting, and what not.

None of these cases is necessarily sadism. Since cruelty readily produces general excitement, under special circumstances it is often used, more or less unwittingly, as a disinhibitory and diffusory means to sexual excitation. Such cruelty is not sexual enjoyment of another's suffering; it is merely use of that suffering as a means toward sexual enjoyment. Neither is any cruelty that derives from general excitation

²⁶ Margaret Mead, *Sex and Temperament in Three Primitive Societies*, 1935, 215-216 (Morrow).

²⁷ I. P. Pavlov, *Conditioned Reflexes: An Investigation of the Physiological Activity of the Cerebral Cortex* (Anrep, tr.), 1927, passim (Oxford Univ. Press).

²⁸ Cf. Cannon, as cited in Tomkins (ed.), *Contemporary Psychopathology*, 1943, 22 (Harvard Univ. Press); Köhler, likewise; PA 12 1681, 13 2760; Ch. Féré, *Revue phil.*, 1897, 43:495; Albert Moll, *The Sexual Life of the Child*, 1912, 92 ff. and Index (Macmillan). Cf. also Béla Mittelmann, *Annals N. Y. Acad. Sci.*, 1947, 47:631-632.

necessarily sadism; it is mere animal spirits. Either instrumental or incidental cruelty, however, can *become* sadistic through learning, through becoming so associated with sexual motivation that the cruelty itself becomes sexually exciting.

The psychogenic explanation of sadism. That sadism is learned is indicated by case studies.

A young man, when sexually motivated, had lustful ideas of cutting open women's stomachs. Analysis showed that, when he was small, he wanted to know how babies get started. One evening when his elders were entertaining guests, at a quiet moment he asked his question. From the response which ensued, he gathered only that the father must cut open the mother's stomach; then he was silenced and shamed into thinking of other topics. When he was older, he learned how babies get started; but he still thought sex was shameful, and he did not recall his childish theory. After puberty, he began to have the sadistic ideas mentioned. When he came to understand that his early theory had linked those ideas with his sexual motivation, and when, in imagination, he became a child again and grew up with the truth, his sadistic obsession faded away.

Another young man reported one morning that he had awakened from "a miserable dream" which seemed "very serious." When asked what he meant, he explained that recently he had been reading Freud. What he read had reminded him that, whenever he saw anyone of either sex cruelly dominated, whether by himself or by anyone else, he was at once sexually thrilled and remorseful. Consequently, he had suspected that he was a sadist; but now the dream seemed to prove that he was a sadist. The dream was of himself pursuing sexually a young, partly clad, and sadly crippled female through the rafters of a large barn, catching her, biting into her leg near a great white scar, disliking the taste, and realizing that he had been a brute. He was asked to write out the dream, to record its associations, and to recall in detail his relevant autobiography. Through doing so, he presented the following history.

By the time he was eight years old he had learned that his mother loved babies but loathed intercourse and considered it wicked apart from procreation; and she resented "men's lust," being used as "a tool," and being made pregnant too often for her strength and the family budget. She lost two babies and had one miscarriage before the boy was born; then she bore further children until, when he was eight, a new baby died and the mother was seriously ill. The boy feared his mother would die; and he blamed his father bitterly.

At that juncture his father added a cock to the family flock of hens. The boy was fascinated to observe that the cock mounted the hens frequently, although the hens did not seem to like it. The boy felt guilty, however, as he realized that he enjoyed watching the cock. He therefore followed the bird about the poultry yard and pelted him with stones every time he transgressed. Thus he was able to watch the cock, to feel righteous, and, symbolically, to punish his father and protect his mother. Finally the bird fluttered into the henhouse and through the perches (the rafters of the dream) into a safe corner.

The father found that both the cock's legs were broken. When the boy explained, the father merely beheaded the bird and gave it to the mother to prepare for the family table. By the next day at dinner, the boy felt miserable. He reflected that he had enjoyed watching the cock; he had made the bird suffer; and perhaps the bird was not to blame;—yet what about the hens, and his mother? He forced himself to eat a drumstick (the scarred leg of the dream) lest questions be asked. For some time thereafter, whenever chicken was served, he had to make himself eat it. Eventually, he “forgot” the whole incident. Only the disturbing dream, after reading Freud, reminded him of it.

His history was complicated with outdated but unadjusted inferiority feelings and resentments relative to playmates and other associates. Nevertheless, through reconsidering his history and revising his attitudes on every point, he became and remained normal.

Various more complicated cases of sadism, when carefully studied, seem to be learned.²⁹

Masochism

Those who consider sadism an important motive are likely to consider masochism important also.

Definition of masochism. *Masochism is sexual enjoyment of one's own suffering.* The suffering may be physical or mental; but, according to this definition, only *sexual* enjoyment of one's own suffering is masochistic. Thus the definition excludes enjoyment of one's own suffering for mere evasion, idleness, sympathy, attention, expiation, merit, or any other ulterior good, conscious or subconscious. For such sufferings, qualifying terms like *evasional*, *valetudinarian*, *martyrlike*, *attention-getting*, *expiatory*, and *self-vindicative* remain available.

The following case seems, according to our definition, *not* masochistic:

²⁹ E.g., PA 6 3934, 24 4699; Sandor Rado, *Dig. Neurol. and Psychiat.*, 1950, 18:220.

A college girl was given to little self-tortures like holding a lighted match close enough to her hand to make it sore. She also liked to remember how, as a child, she suffered from whooping cough, a cut arm, and a broken leg. When she was a child, she had felt neglected and disliked except when ill or injured; then her mother cared for her and caressed her. Thus suffering had come to mean consolation for her.³⁰

Excitation from diffusion distinguished. Some individuals find suffering a means to sexual excitation; the suffering induces excitement which disinhibits and excites, through diffusion, sexual motivation. Such instrumental suffering is not masochistic, because it is not sexual enjoyment of the suffering. It can *become* masochistic, however, through so associating the suffering with sexual motivation that the suffering itself becomes sexually exciting.

The psychogenic explanation of masochism. Case studies suggest that masochism, like sadism, is learned.

Masochism is perhaps more common among males than among females.³¹

More or less unwittingly, some persons have so associated sexual expression with sin, sin with expiation, and expiation with suffering, that suffering has become sexually exciting for them.

Some girls, if their early questions about sex are not answered, develop childish theories that sexual union is both painful and pleasurable for the female. A number of these girls, after puberty, find suffering sexually enjoyable. Judging by the way some of these cases work out in analysis, their masochism was learned through their early theories.

More complicated types of masochism, which we cannot consider here, likewise seem learned.^{32, 28}

Sexual Love

The Freudian view seems to confuse sexual love with narrowly sexual motivation. It is true that such hedonically related motives readily reinforce one another. For example, many small children react

³⁰ Abstracted from Margaret Wooster Curti, *Child Psychology*, 1930, 150 (Longmans). Karen Horney, in *The Neurotic Personality of our Time*, 1937, 262-280 (Norton), gives further examples, though she sometimes calls them masochistic.

³¹ Cf. Theodor Reik, *Masochism in Modern Man*, 1941, passim (Farrar).

³² Cf. Horney, *New Ways in Psychoanalysis*, 1939, 269-272 (Norton); PA 5 3138.

to caresses with erection;³³ adults commonly fall in love through pleasant alimentative, affective, sensory, and other types of motivation (food, flowers, compliments, sociability, common interests) in addition to sexual motivation; and an occasional abnormal adult's sexual motivation has become attached to some special alimentative, sensory, or other motivation through undue influences. We need to go further, however, to understand what Hume called "the amorous passion, or love betwixt the sexes."

Components of sexual love. Hume pointed out that "the amorous passion," "in its most natural state, is derived from the conjunction of three different impressions or passions, *viz.*, the pleasing sensation arising from beauty; the bodily appetite for generation; and a generous kindness or good-will." In more modern terms, we shall call the first of these components esthetic appreciation, without assuming that it is simple or that we understand it fully. The second component we shall call lust. Hume's third component is less easy to label. As, however, he used the terms benevolence and esteem in the same connection, we may assume that it includes what McDougall, Sharp, and others have called tender emotion, admiration, and altruism, respectively.³⁴ (We shall examine altruism later in this chapter.)

Of these factors, McDougall reduced admiration to wonder, which seems to be an aspect of curiosity, and to subjection or negative self-feeling, which we shall call submission. He also mentioned elation or positive self-feeling as an element in sexual love and in pride; and everyone knows that pride is commonly involved in sexual love. Even in the love affairs of savages, both admiration and pride are important factors. In some cultures more than others, desire for companionship is a factor. Herbert Spencer added desire for approval and "an extended liberty of action." Still other components are the habitual actions and purposes which the individual develops about his beloved.³⁵

Separability of the components. The components of sexual love often separate more or less completely. The lust component, in particular, can function relatively detached from the other components. This is

³³ John Levy and Ruth Munroe, *The Happy Family*, 1938, 127 (Knopf).

³⁴ David Hume, *Treatise of Human Nature*, 1888, Book II, Part II, Sections XI, IX; William McDougall, *Introduction to Social Psychology* 1918 (Luce); Frank Chapman Sharp, *Ethics*, 1928 (Century).

³⁵ References in Psychol. Monog., 1933, 13:No. 1, 72-73. Cf. also Erich Fromm, *Man for Himself*, 1947, 97-101 (Rinehart).

the potential "impersonality of sex" remarked by Bernard Shaw. As Myerson said, "It is a hunger, and no more than the starved man forms any psychic attachment to the morsel of food that he devours. does the sexual passion necessarily attach any particular psychic value to the object of desire." The Trobrianders frankly recognize sex gratification as good in itself. Our civilization has not so openly recognized it because of the tradition that sex is obscene. Michels stated that "no woman of a calm and elevated mind has ever felt any sense of injury or affronted honor in consequence of the sexual admiration of a man"; and that "the 'pure' woman is a fiction of the libertine. The libertine is one who suffers from a distressing cleavage of the soul"—he considers really lovable women nonsexual, and sexual women not really lovable. This cleavage exists in many, owing to social traditions whose aim, pathetically enough, was virtue instead of this sort of vice or pathology.³⁶

The tender-emotion component often functions apart from the lust component. Among the animals, nonsexual tender emotion occurs in both sexes. Hamilton noted that a voluntarily established pair of monkeys, "after they had been caged together for some time, ceased to stimulate one another sexually as they were stimulated by new cage companions of the opposite sex," yet, when separated, "would persistently call to one another and, if they were in adjoining cages, nestle against one another through the separating wire netting. When mates who had been separated for a few days were restored to one another they would rush into a face-to-face embrace (this is not the copulating position for monkeys) and utter sounds which are characteristically uttered by all monkeys when a disadvantage has been overcome or escaped." He concluded that these observations, together with various studies of the human species, "support the view that there is a mating tendency which can and often does function separately from the tendency that leads directly to copulation."³⁷

The Tanala and Betsileo tribes of Madagascar differentiate clearly between lust and tender emotion between persons of the opposite sex. Among these people, a man and woman who love each other, but who are unable to marry because of relationship or have found each other physically unsatisfactory during premarital relations, will go through the ceremony of *fatidra* or blood brotherhood. This ceremony, said

³⁶ References in Psychol. Monog., loc. cit., 75.

³⁷ G. V. Hamilton, *An Introduction to Objective Psychopathology*, 1925, 322-323 (Mosby).

Linton, "establishes a relationship between them closer than that of brother and sister by the same mother, and sexual relations are thenceforth unthinkable. They would be punished by prompt death at the hands of the ancestral spirits. After making such a bond the couple can be together as much as they wish without chaperonage and a man may even come and live in the house of a married *fatidra* sister in the absence of her husband without exciting gossip.

"Married people who think it advisable to separate, but who feel a deep affection for each other, may also perform this ceremony. Such separations are usually due to the fact that the union has proved sterile and both believe they may have children by other partners, or to the discovery that they are within one of the prohibited degrees of relationship, some of which are very remote. A married couple may also make *fatidra* without separation as a sign of their deep affection, but in this case the right to sexual intercourse is reserved by the parties when making the bond."

This custom is particularly significant in that both tribes allow easy divorce, are polygynous, and "are tolerant to sexual relations outside marriage as long as the incest regulations are not infringed"; in other words, no one is compelled to enter *fatidra*, yet individuals often choose to enter it.³⁸

Esthetic appreciation, also, often functions independently. Even among the wanton Trobrianders, where, as elsewhere, sex activities are commonly surrounded with many forms of beauty, the esthetic life flourishes on its own account as well.³⁹ The remaining components of the love life seem to be in the same case: wonder, submission, elation, pride, companionship, altruism, and the rest, including various habitual activities and purposes, may all occur quite apart from the sex function.

This separability of components largely explains some sexual abnormalities. Examples are the man who is tenderly devoted to his wife, but can lust only after inferior women; the man who can experience only lust for his wife or any other woman; and the individual whose lust is bound up with his own sex, or with suffering, or with some "fetish" like human hair, lacy clothing, a dust cloth, a particular color, or any object or situation with which this urge has become linked.⁴⁰

³⁸ Communicated by Ralph Linton.

³⁹ Bronislaw Malinowski, *The Sexual Life of Savages*, 1929, 243-260, 276, 291 (Routledge). Cf. also Genet. Psychol. Monog., loc. cit., 78n.

⁴⁰ Cf. Oliver Goldsmith, *She Stoops to Conquer*; Genet. Psychol. Monog., loc. cit., 80-81.

Mutual reinforcement of the components. On the other hand, the components of sexual love tend to reinforce one another. As Hume said, "the appetite of generation, when confin'd to a certain degree, is evidently of the pleasant kind, and has a strong connexion with all the agreeable emotions. Joy, mirth, vanity, and kindness are all incentives to this desire; as well as music, dancing, wine, and good cheer. On the other hand, sorrow, melancholy, poverty, humility are destructive of it. From this quality, 'tis easily conceiv'd why it shou'd be connected with the sense of beauty.

"But there is another principle," he explained, "that contributes to the same effect . . . The parallel direction of the desires is a real relation, and, no less than a resemblance in their sensation, produces a connexion among them"; as when both beauty and hunger draw us toward food. "From these two relations, *viz.*, resemblance and a parallel desire, there arises such a connexion betwixt the sense of beauty, the bodily appetite, and benevolence, that they become in a manner inseparable: And we find from experience, that 'tis indifferent which of them advances first; since any of them is almost sure to be attended with the related affections. One, who is inflam'd with lust, feels at least a momentary kindness towards the object of it, and at the same time fancies her more beautiful than ordinary; as there are many, who begin with kindness and esteem for the wit and merit of the person, and advance from that to the other passions. But the most common species of love is that which first arises from beauty, and afterwards diffuses itself into kindness and into the bodily appetite. Kindness or esteem, and the appetite to generation, are too remote to unite easily together. The one is, perhaps, the most refin'd passion of the soul; the other the most gross and vulgar. The love of beauty is plac'd in a just medium betwixt them, and partakes of both their natures: From whence it proceeds, that 'tis so singularly fitted to produce both.

"This account of love is not peculiar to my system, but is unavoidable on any hypothesis. The three affections, which compose this passion, are evidently distinct, and has each of them its distinct object. 'Tis certain, therefore, that 'tis only by their relation they produce each other. But the relation of passions is not alone sufficient. 'Tis likewise necessary, there shou'd be a relation of ideas."⁴¹

The reinforcement referred to here is in total effect, rather than point

⁴¹ Hume, *op. cit.*, Section XI.

for point. For example, increase of tender emotion does not require increase of lust, altruism, and all the other components at the same instant; often some one component predominates for the time being. Within a longer period, however, and barring complications, the various components of sexual love tend to increase if any one of them increases.

Some persons deny that lust and tender emotion can reinforce one another. These two emotions, they say, are mutually antagonistic, in that "lust is egoistic and tender emotion is altruistic." A moment's analysis shows, however, that this view is mistaken. Lust is neither egoistic nor altruistic. Egoism means wanting good for oneself; altruism means wanting good for another. Pure lust does not want good for anyone; it merely seeks expression—the lusting person wants only the object of his lust for this purpose and often considers neither his own nor the other's good. In essentially the same way, pure tender emotion is neither egoistic nor altruistic. The person with tender emotion wants to touch and fondle the object of his tender emotion; many a mother fondles her child so constantly that she cramps its development. Thus lust and tender emotion alike draw their possessor simply toward his object. When the object is the same for both emotions, the two emotions naturally become so associated that either arouses and reinforces the other.

Evidently, either lust or tender emotion may inhibit altruism. Altruism, also, may inhibit either of the two emotions; for example, when the lover guards his beloved against ill-considered passion, or when the mother refrains from petting her child and sends it out to fight its own battles. Ordinarily, however, within sexual love, both lust and tender emotion tend to reinforce and to be reinforced by altruism; because, like those emotions, altruism draws its possessor toward his object, is also an experience "of the pleasant kind," and readily develops associations which reinforce the total attachment.

Of the two emotions mentioned, lust seems biologically the more primitive, in that mating occurred in evolution much earlier than did parental care, family affection, and nonsexual friendliness; tender emotion seems the more highly evolved. Also, tender emotion is the more encouraged and officially approved by our society, because the consequences of tender emotion are usually benign. Altruism, likewise, is a high development and is systematically encouraged by society. Moreover, altruism requires thought; and tender emotion, being a relatively calm emotion, is more conducive to thought than is lust. Consequently, altruism is found less commonly with lust than with tender emotion.

General excitation and the components. The components of sexual love tend to function together not only through hedonic resemblance, parallel direction, and learning, but also through general excitation. With general vigor, or excitement, or integration (which is itself motivating), all the components tend to function, unless they are already satisfied or are inhibited by other interests.

Emergent effect of the components. To recognize motivational components which separate and combine is not to deny that integration of the components amounts to an emergent effect, something unique and valuable as a whole.

Sexual Motivation in Perspective

No study of sexual motivation should obscure the various nonsexual motives, native and learned, many of which are highly important. We have touched upon such other motives previously and shall consider a number of them in the present chapter.

Narcissism, homosexuality, sadism, masochism, and other deviations from normal sexuality are not universally inherent and tending to come out. On the contrary, in most cases at least, they can be developed through untoward influences; and they can be avoided, and normal interests can be developed, through suitable influences.

Though there are many other important motives, sex remains important, physiologically, psychologically, and sociologically, some of the time in most if not all people.

This motive has been so grossly misunderstood that many persons need psychotherapy, and all should be brought up with mental hygiene relative to their sexual motivation. The same should be said for other kinds of motivation.

Despite various untoward influences, countless persons have been sufficiently resilient and intelligent to develop normal sexuality. Apparently, too, more members of each recent generation have been brought up intelligently with regard to this motive.

Among everyday subjects, Hamilton found that many of the two hundred married men and women he studied had had tendencies toward exhibitionism (sexual exposure), narcissism, sadism, and masochism at some time, but without much effect on adult sexual satisfaction. Dickinson and Beam, studying 1,000 married couples, found no noteworthy case of sadism or masochism among them. Again, while Hamilton discovered that about 60% of his subjects had had at least

an intense friendship with one of the same sex, that 46% of the men and 23% of the women had had affairs within their own sex which involved sex-organ stimulation, and that about 25% of each of the two groups still were capable of some sexual attraction toward their own sex, yet practically all of these persons had sooner or later developed enough normal sexual interest to lead them to marry, and not more than 10% thereafter had any homosexual imaginings either when awake or asleep. True, toward a complete view of modern sexual problems, we should also consider studies of the unmarried; yet it remains easy to overgeneralize from sexual abnormalities which are transient or which characterize only a few subjects.⁴²

Some laymen think that every mental disorder comes from undue sexual expression or repression or both. The psychiatrist knows otherwise. Many mental disorders come from nonsexual hereditary, organic, and stress factors.

Some psychoanalysts believe that every *psychoneurosis* is sexually caused, in part at least, and that any analysis which fails to discover the sexual factor is incomplete.⁴³ Various cases, however, indicate that psychoneuroses can derive wholly from nonsexual factors.

According to Janet, non-Freudian analysts often "observe sufferers from grave psychoneurotic disorder who make no complaint whatever of their sexual functions, and who, however carefully we examine them, give no sign of having a distressing memory relating to some definite sexual adventure or mishap.

"As a specific instance I shall refer to the case of the young woman whom I have described under the name of Irene. She has been under my observation for more than ten years, exhibiting the symptoms of grave and persistent hysteria. Her father was an alcoholic and died of delirium tremens; her mother, psychasthenic to a high degree, died of pulmonary tuberculosis. Irene herself, exhausted by poverty, overwork, and sleepless nights, disturbed by the terrible emotions occasioned by the dramatic circumstances of her mother's death, has suffered during these ten years from a succession of major psychoneurotic disorders. Throughout that period I have watched her closely; I am familiar with all her thoughts and all her mental states; and I can asseverate that she has never had any sexual disturbances in the strict sense of the term, or any sexual adventures or mishaps which have pro-

⁴² Abstracted from Millard S. Everett, *The Hygiene of Marriage*, 1932, 82-83 (Vanguard).

⁴³ For an early sexual interpretation of the psychoneuroses cf. Jean-Baptiste de Louyer-Villermay, *Traité des maladies nerveuses ou vapeurs, et particulièrement de l'hystérie et de l'hypocondrie*, 1816 (Méquignon l'aîné père, Paris).

duced a strong impression on her mind. Brought up in an easy-going proletarian environment, she made an early acquaintance with all kinds of sexual phenomena without attaching much importance to them; she is capable of experiencing normal sexual sensations, without going out of her way in search of them, and without trying to avoid them; it is difficult to conceive of a more normal sexual life than hers—and yet I do not know a more typical case of major hysteria.

"The same remark applies to a great many hysterical patients, and to psychasthenics, who may be obsessed or phobic as regards other phenomena while they are perfectly sane as regards their sexual life. Even if such patients are rare, I consider it indubitable that they exist.

"In many cases we can prove that sexual disturbances are not the cause of the nervous disorder, but are its consequence and its expression. In many patients we can detect veritable amorous obsessions, even accompanied by erotic gestures and sexual agitation, although the starting-point has not been a sexual disturbance properly so called. These patients are continually displaying their affectionate disposition, they are perpetually trying to attract attention to themselves, they are always dreaming of caresses, and they seem to be constantly aspiring towards something which they are impatiently awaiting, as if they were aspiring towards love. We must not fall into the mistake of supposing that all such manifestations are the expression of unappeased sexual urges. Fundamentally, they depend upon a terrible dread of isolation, upon an impulsive need to love and to be loved—these manifestations being connected with the need for guidance, the need for excitation, and the sentiments of incompleteness, which are themselves the accompaniments of the patient's depression. Such amorous obsessions are equivalents of authoritarian obsessions, obsessions of jealousy, or simply impulses to take alcohol or morphine. They alternate, in some of these patients, with impulses to consume toxic stimulants; they appear when the crises of depression occur, and disappear as soon as the psychological tension [tone] has been restored. We should make a great mistake were we to regard them as primary, were we to link them up to some sexual trauma of old or recent date, for they are merely to be classed among the multifarious manifestations of depression." ⁴⁴

It follows that free sex expression can neither cure nor prevent all psychoneuroses, to say nothing of the other mental disorders. Even marriage is no sure cure for psychoneuroses.⁴⁵ Some individuals have

⁴⁴ Adapted from Pierre Janet, *Psychological Healing* (Eden and Cedar Paul, trs.), 1925, 1:624-625, 630, 631 (Macmillan). Cf. also his pp. 631-634; and Frances M. Strakosch, *Factors in the Sex Life of Seven Hundred Psychopathic Women*, 1934.

⁴⁵ Cf. Robert Latou Dickinson and Lura Beam, *A Thousand Marriages*, 1931, 448 (Williams and Wilkins).

been advised by well-meaning counsellors to marry to get over their psychoneuroses; and they have married—only to find their disorders both aggravating and aggravated. Many persons who marry for normal reasons are not made over by their marriage. Happily, there are exceptions: some persons, when married, have fewer conflicts, learn some stability from their mates, and are impelled and able to develop better integration, either through daily learning or with professional help.

Some students have supposed that, in view of the taboos against free sex expression, wholly uncensored art is necessary for "vicarious expression," as a kind of safety valve or vacation ground.⁴⁶ Upon examination, that view seems to assume that the various perversities of sex, whether conscious or not, are widespread, also that "catharsis" if not "sublimation" of sexual and other motives can occur through art. We have seen that the first of these assumptions is highly questionable, and, later on, we shall see that the second is also questionable. Moreover, any view that urges free outlet, whether direct or vicarious, seems to overlook the basic psychology of habit formation.

Apparently, however, psychology does not justify authoritarian censorship. Rather, it calls for a more free interplay of ideas than occurs either under censorship or in the current chaos.⁴⁷ Neither does psychology frown upon fun and adventure as such. On the contrary, it supports Spinoza's view that "a wise man . . . will refresh and recreate himself with moderate and pleasant food and drink, also with sweet scents and the beauty of green plants, with ornaments, with music, with sports, with theatres, and with all things which every man can enjoy without harm to his neighbor. For the human body is composed of many and different parts, which constantly need new and varied nourishment, so that the whole body alike may be fit for all actions incident to its kind, and that the mind may be fit for understanding many things at once."

What we know of sexual motivation is no argument for license. Many "emancipated" persons merely flounder out of traditional taboos and into worse thwartings, and even develop psychoneuroses in consequence. Psychologically, no less than ethically, living means maximal integration, not indulgence of some interests, such as the sexual, through denial of other interests, such as the altruistic and idealistic.

⁴⁶ Cf. Maurice Parmelee, *Personality and Conduct*, 1918 (Moffat); Havelock Ellis, *Affirmations*, 1897 (Walter Scott).

⁴⁷ Cf. W. S. Taylor, *Sewanee Rev.*, 1935, 43:311-326.

As Spinoza said, "A thing cannot be bad for us through the quality which it has in common with our nature, but it is bad for us in so far as it is contrary to our nature."

Curiosity

Curiosity is such a universal drive that many students have considered it an instinct and have stopped their analysis there. Some further analysis suggests, however, that curiosity is not an instinct but the outcome of many motives.

From this point of view, *curiosity is an essentially ideational diffusion toward adjustment*. It is ideational, in that perceptions, thoughts, notions, guesses, outweigh whatever other reactions may be implicated. It is diffusion, in that it is spread of excitation to various reactions. This diffusion is toward adjustment, in that the excitation derives largely from novelty, which means some lack of adequate reaction; and the excitation persists toward adequate reaction to the object of curiosity.

When John Doe is expected to arrive at seven in the evening, and the doorbell rings, arousal of hospitable and friendly reactions is not curiosity. Curiosity occurs when somebody quite different from John Doe appears and arouses the various reactions, "Friend? Stranger? Interesting? Time-taking?" until an adjustment to him is worked out. If the visitor is John Doe in disguise, the host's curiosity is satisfied when he has learned how to react to John Doe in disguise.

Since curiosity derives thus from some lack of adjustment, curiosity thrives as the ensuing excitation and ideational diffusion thrive. Consequently, thwarting the curiosity thwarts adjustment, and therewith the individual, often deeply. Satisfying the curiosity develops adjustment, which may support higher levels of curiosity and higher adjustments.

Play

Another motive which is often called an instinct and is left unanalyzed is play. Like curiosity, however, play seems too important not to be recognized as the expression of various urges.

Definition of play. To narrow the term for our discussion, we shall say that *play is fun activity*. This definition limits play to activity which

is inherently satisfying in itself and, more particularly, is fun. The activity, however, need not be overt.

At certain times, drinking cold water is refreshing; meditation is restful; walking alone is enjoyable; contemplation of beauty is satisfying; discussion is stimulating; and work is interesting, exhilarating, or joyous; yet none of these is *fun*. Games used merely for hygiene, self-vindication, profitable social contacts, or earning a living are not fun. A game played to *get* fun is not fun, so long as it is played consciously for that purpose. Play is itself fun; though sometimes it is fun to be straight-faced.

Conditions for play. Stated no more precisely than we understand them, the conditions for play seem to be (1) considerable general excitation and (2) considerable adjustmental readiness, readiness to meet the situation successfully.

The general excitation comes from health and from any urge or other special excitation. Healthy children play more than sick children, and a sick child becomes more playful as his health improves. The sound of a rattle excites the baby to play with it; muscular restlessness prompts the child to dance and run when released from school; and tender emotion often makes a child or an adult playful. On the other hand, too much general excitation so upsets the individual's adjustmental readiness that he wonders, fears, or otherwise ceases to play.

The readiness depends upon native capacity, health, attitudes, sets, and previous learning, all relative to the given situation. If a game is too intense for one's strength, or one considers it wrong, or wants to be doing something else, or does not know how to play the game, one does not play but, at best, one works at the game. Likewise, if one's readiness is much decreased by conflict, play gives way to work, anger, fear, or some other nonplayful reaction.

True, some conflict occurs in play: the base runner hesitates conflictfully between two bases; and a whole activity, such as exploring a cave, may be breathtaking, tense, full of conflict. There may also be considerable conflict between the individual's other activities and his play activity; for instance, when he plays a game which his family and church oppose, and which he often thinks he ought to oppose. Indeed, a child who suffers from any conflict is likely to express it in his play; for example, a small boy who hates his father but knows he ought to love him may play that his father has gone to Heaven or to war. We

notice, however, that the base runner is likely to refer to his hesitation as "a moment's hard work," and he enjoys the rest of the game in contrast. Conflictful exploration of a cave seems to be play if it releases the individual from yet more conflictful activities and he thinks he can master the cave. The individual who engages in a disapproved game can *play* it only so long as his idea of disapproval does not conflict too much with this activity. The boy who is in conflict about his father in real life suffers less conflict while playing that his father has gone away, because the play centers in a story-book father, one who can be sent away, and who therefore is less hated-and-loved than the real father. So long as a given activity is play, it remains relatively free from conflict; otherwise there is not enough adjustmental readiness to support play.

If an individual's adjustmental readiness for a given situation is too complete, relative at least to his general excitation, he does not play there. Instead, he meets the situation with sheer habit and perhaps plays with some extraneous situation at the same time.

Why do some persons play little or not at all? Perhaps because they have too little general excitation, or too little adjustmental readiness, or too much of either of these, with which to meet the given situation.

Play as a motive. Since play derives from health and from various urges and special excitations, it takes various forms. These forms become habits, which also become motives to play. Both the original and the acquired motives make of play itself a motive highly important for education, social life, health, and happiness.

The Urge to Autonomy

Every normal person seems motivated to overcome any obstacle, to defy restraint, and, as Angyal said, "to make things happen for the mere joy of experiencing oneself as the cause of the changes."⁴⁸ We shall call this motive *the urge to autonomy*.

Like curiosity, play, and other motives to be mentioned, the urge to autonomy derives from various motives; it takes various forms; often it is modified by learning; and it overlaps other motives on our list. Nonetheless, it plays a greater part in mental illness and health

⁴⁸ Cf. Henry A. Murray, *Explorations in Personality: A Clinical and Experimental Study of Fifty Men of College Age*, 1938, 151, 82, 156 (Oxford Univ. Press); Andras Angyal, *Foundations for a Science of Personality*, 1941, 218-221 (Commonwealth Fund; Harvard Univ. Press).

than many mental hygienists, psychotherapists, and persons in authority have realized.

Many of Pinel's patients improved noticeably when he removed their chains. In modern hospitals, pack treatments and continuous baths soothe many excited patients, but can be very upsetting to patients who mistake such treatments for mere restraint.

Tom A. Williams observed "numerous cases in which maladjustments and character deviations" resulted from "impediments imposed by parents and guardians of the young, and by managers and supervisors of adults."

It is well known that school children, students, and workers, when allowed some initiative, become more interested in their work and its relations to life.⁴⁹

The Urge to Security

Out of many motives, native and learned, grows the *urge to security*. This is a general urge which is protective against thwartings and for satisfactions. It varies somewhat with circumstances. The child wants bodily and familial security; the poverty-stricken person wants economic security; and the well-to-do person wants avocational, social, political, religious, and likely other kinds of security. Every person wants security for whatever he values highly; and whenever that security is threatened, he develops one or more "reactions to stress," as we shall call them in a later chapter.

Constructiveness

Numerous discussions of education, work, and leisure emphasize "the instinct of workmanship," "constructiveness," or "creativity." So long as any such term is not taken literally to mean an instinct, it points to a real, though complex, general drive. We shall call all grades of this drive, from simple craftsmanship to high creativity, *constructiveness*.

Constructiveness seems to implicate different motives in different individuals, and in the same individual at different times. Among these motives are curiosity, esthetic appreciation, the urges to autonomy and to security, rivalry, desire for approval, altruism, and further forms of motivation, most of which are complex and more or less learned.

⁴⁹ Adapted from Tom A. Williams, *J. Am. Med. Assn.*, 1922, 79:1514-1517 (Taylor, *Readings*, 677); Ordway Tead and Henry C. Metcalf, *Personnel Administration: Its Principles and Practice*, 1933 (McGraw-Hill); Norman R. F. Maier, *Principles of Human Relations*, 1952 (Wiley).

The resultant, constructiveness, is integral to much human living. The individual who develops normally develops constructiveness, and his constructiveness likely develops him further. The individual who becomes maladjusted is liable to develop destructiveness;⁵⁰ and some occupational therapy, or constructive play, or both, may help him to become normal again.

In the convalescent ward of a hospital for military deserters, the men were surly and dull. One day the doctor, chancing upon a drawing one of them had made, offered twenty-five cents for the best drawing to be produced within the week. Immediately the atmosphere was changed: all of the men became interested and amused. For so long as the doctor renewed his offer, this atmosphere prevailed.

Hamilton observed that creative individuals often become better integrated when given creative outlet and some recognition.⁵¹

Though neither of these sets of observations excludes other motives, constructiveness seems an important factor.

Acquisitiveness

In man at least, for all practical purposes, acquisitiveness is learned. Men learn to acquire for enjoyment, security, constructiveness, altruism, or some other end. Often such ends become so overshadowed that the acquisitiveness becomes a motive in itself. Often it becomes a powerful motive, and sometimes a pathological one.

A young woman complained that for several years she had been stealing small sums of money from her employer, from fellow workers, and even from personal friends. She explained that she did not need the money; she always tried not to take it; and whenever she could return it secretly, she did so;—yet she kept on taking it.

The young woman seemed well endowed in body, mind, and personality. Analysis showed nothing abnormal about her sexual motivation, past or present. Her general moral training was excellent. Her parents were hard-working immigrants. During her early school years, she lacked the good clothes and little luxuries the other children had. One time, when all the girls were supposed to come to school in white dresses for a May party, she alone had to wear gingham; and she was brokenhearted when another little girl hissed: "Just like a Hunk!" While still quite small, she learned that when she could buy ice-cream cones for her classmates she was popular. This led her to steal small sums from her mother's purse.

⁵⁰ Cf. PA 12 6117.

⁵¹ Cf. Hamilton, *op. cit.*, 286-291.

As she grew older she stopped the practice and tried to forget that she had ever stolen. She did well in high school; she made friends there; and she looked forward to having friends in her chosen vocation. When she graduated and obtained a position, she was much hurt to find that her associates looked down upon her. She resolved to work hard and win their respect; but in the meantime the kleptomania appeared. This made her feel more than ever an inferior. When she found the kleptomania becoming stronger, she sought psychological advice.

Though her analysis amounted to only three or four hours of straightforward discussion, it enabled her to see that her adult stealing was her childhood's way toward popularity. Moreover, the analysis led her to think out a better way with which to have met each historical stress. Finally, it led her to understand her present associates and to take a constructive attitude toward her total social situation. Then, almost at once, her obsession disappeared.

A dozen years later she reported that she had never since been tempted to steal, even with abundant opportunities.

Rivalry

Like acquisitiveness, rivalry is a learned motive. A common form, and one that often affects personality development, is sibling rivalry. Rivalry develops as a means to this or that particular good or interest. Sometimes it becomes a general motive, ready to function when any potential rival threatens any interest. Sometimes it becomes an obsession to outshine everybody else. In many instances, however, through learning, rivalry gives place to cooperation.

Domination, Submission, and Cooperation

Domination. Some authors consider many if not all motives forms of domination. It seems best, however, to limit domination to motivation in which the individual sets himself up somewhat *as a master over a servant*. Domination readily combines with curiosity, play, the urges to autonomy and security, constructiveness, acquisitiveness, rivalry, and other motives; but these motives occur also apart from domination.

Domination is a complex and learned motive, and takes various forms. It develops in any person who feels continually threatened by someone or by inferiority, guilt, or other stress, and who learns to get along only through dominating someone. A boy whose older brother has dominated him physically may come to dominate his older brother financially, or to dominate other men as symbols of his older brother. Some persons choose vocations to practice domination. A parent or

employer given to domination may be arbitrary, critical, severe, or overprotective.

Domination always expresses some lack of integration: the individual dominates because he feels too insecure to do otherwise; and he feels insecure as he is discoordinated, restricted, divided, or unstable. Since domination induces similar lack of integration in the person dominated, this person is likely to dominate someone else in turn, so spreading the pattern.

Submission. Characteristically, the child submits to his parents, the lover to his beloved, the member to his group, the citizen to his government, the communicant to his church, and the philosopher to the universe. Failure to submit may mean continued stress; and actual submission, particularly after some stress, is often sweet. Some conclude that submission is an instinct, and some, that it is a form of masochism. It seems more likely, however, that submission is not an instinct, and that it does not involve masochism except in special cases. Individuals learn that to submit is often the best way to avoid undue stress, to gain rest and integration. Submission thus expresses the native tendencies to avoid fatigue and to satisfy what motives can be satisfied; also the learned tendencies to yield to the inevitable, and to undertake only the possible.

Submission expresses lack of integration only in so far as the submission is abject.

Cooperation. Though the term is often misused, cooperation implies neither domination nor abject submission. Instead, it implies such reasonable persuasion that the persuaded one yields, "not through weakness, but through increase of strength." *Cooperation is rational development of interests in common.*⁵²

"Let satirists laugh their fill at human affairs, let theologians rail, and let misanthropes do their utmost to extol a rude and churlish life, let them heap contempt on men and praises on beasts; when all is said, they will find that men can satisfy their own needs best by mutual help, and that only by uniting their forces can they escape from the dangers that on every side beset them." "Nothing, therefore, is so useful to man as man; nothing more excellent, I say, can be sought by men towards

⁵² Cf. W. S. Taylor, *J. Soc. Psychol.*, 1945, 22:203-208, or *Bull. Am. Assn. Univ. Professors*, 1946, 32:657-662.

maintaining their being than that all should so agree in all things as that the minds and bodies of all should make up as it were one mind and body, and all together strive to maintain their being to the best of their power, and all together seek the common interest of all. Hence it follows that men who are governed by reason, or who seek their own interest after the guidance of reason, desire nothing for themselves which they desire not for other men; and therefore also they be just, faithful, and honourable." "The highest good of those who follow virtue is common to all, and therefore all can equally rejoice therein."⁵³

It follows that cooperation means increase of integration, both for the group and for every individual who cooperates.

Among children, at least, the individual who enlists true cooperation is usually more intelligent than the average; he is also self-confident, sociable, and reasonable; and he fosters these same qualities in his fellows.⁵⁴

Gregariousness

Long considered an instinct, gregariousness is now thought to be learned through association with fellow beings. Ordinarily, gregariousness becomes a powerful motive, variously bound up with other motives. Gregariousness may be inhibited by contrary motives. When it is inhibited, the individual's life is liable to be "solitary, poor, nasty, brutish, and short." When gregariousness is merely thwarted, the resulting loneliness may mean acute stress.

Some persons become abnormally dependent upon company as an escape from their own problems, or as a proof of their own acceptability as persons. Others shun company as a reminder of their own problems, or as an annoyance under any circumstances. Often such aberrations can be traced to unusual learning, sometimes on a native temperamental basis.

Desire for Approval

From childhood up, the individual learns that disapproval means hardship, punishment, and hostility, and that approval means comfort, reward, and affection. No wonder the desire for approval becomes a powerful motive; so powerful in some individuals that their lives are subject to it.

⁵³ Spinoza, *Ethics*, IV, xlv, xxxv, xviii, xxxvi.

⁵⁴ Cf. Mabel F. Martin, in *Encycl. Ch. Guidance*.

Normal individuals perceive others' approval or disapproval, consider it, and either conform to it or rise above it, according to their lights. Abnormal individuals variously fail to perceive others' attitudes, to consider them, and to react rationally to them. Some susceptible individuals, of course, are made abnormal by others' irrational attitudes of approval or disapproval.

Egoism and Altruism

Many persons have reasoned that there is no altruism. Does not everyone, they ask, do just what he *wants* to do? Does not the mother sacrifice herself for her child because she would be more unhappy if she did not? Does not any person who helps another help him either for some return or to protect the helper from imagining the same need to be his own? Even if the martyr who gives his life for his faith does not hope for an eternal reward, is he not so preoccupied with his faith that he wants to advance it above all? In a word, does not everyone act only for his own pleasure, his egoistic good?

Naturalistic ethicists, who have discussed this question, agree that *every* act is what the individual most readily does at that moment. They point out, however, that it does not follow that every act is *for* pleasure or any other good. Thought of outcome becomes a cause of action in none but the more highly developed and learned motives. One kind of thought of outcome is *seeking what seems good* for someone. *Egoism* is seeking such good *for the self*. *Altruism* is seeking it *for one or more others*.

Everyone does only what his own development permits. The egoist has learned to seek good for himself. The altruist has learned to seek good for one or more others—parent, sibling, friend, mate, family, community, nation, humanity—according to his development. Most people have developed sufficiently to be egoistic. Many people, owing to superior intelligence or education or both, have developed sufficiently to be more or less altruistic.

When children were asked what they would do with a million dollars if they had it, more of the brighter than of the duller children chose philanthropy and benefits for others.⁵⁵

Abnormalities include unreasonably limited, obsessive, and compensatory egoisms and altruisms, also pseudo-altruisms that *are* egoism in

⁵⁵ Cf. Arthur T. Jersild, Frances V. Markey, and Catherine T. Jersild, *Child Devt. Monog.*, 1933, No. 12, 31.

disguise and that deceive at least the persons who display them.⁵⁶ Each of these abnormal types fails to take account of the real or whole good of the person in question. In many cases, a cure depends upon deep, individual analysis and re-education.

Idealism

Important in all highly developed persons is idealism in the sense of *motivation by ideals*.

Such motivation is a natural development. As Justice Holmes said, "Man is a predestined idealist, for he is born to act . . . To act is to affirm the worth of an end, and to persist in affirming the worth of an end is to make an ideal." In any field in which a highly developed person is interested, he cannot but discriminate between the better and the worse. From various instances of the better, he cannot but abstract some notion of the best. That notion becomes his ideal in that field. An ideal so derived is, like a habit, a pattern of reaction, and therein a motive. Together with other motives, it defines and fosters ethical conduct. Thus, as Riggs and Richardson observed, "man's demand for the specific form of satisfactions and happiness which ethical conduct engenders seems to be a genuine biological development. Is it not indeed this very demand in each individual which makes civilization a biological necessity?"⁵⁷

Freud and others have shown that ideals often repress other motives sufficiently to cause disorders. It is not so commonly recognized that other motives sometimes repress ideals sufficiently to cause disorders. One clinical psychologist, who studied personally the mental hygiene problems of several hundred university men and women, concluded that "if the analyst does not begin with preconceived notions, if he avoids steering the train of association, and if he continues the analysis long enough, he will find in many instances, even in markedly pathological disorders, that the difficulty may be due not to the repression of either sexuality or selfishness, but to the repression of ideals." These ideals, so far from being merely impressed by the social group, "very

⁵⁶ For example, on neurotic "unselfishness," cf. Fromm, *op. cit.*, 131-133.

⁵⁷ Oliver Wendell Holmes, *Speeches*, largely as quoted by Elizabeth Shepley Sergeant in Felix Frankfurter (ed.), *Mr. Justice Holmes*, 1931, 217 (Coward McCann); Austen Fox Riggs and Horace K. Richardson, *Annals of Internal Med.*, 1936, 10:18. Cf. also Julius Seelye Bixler, *Religion for Free Minds*, 1939, 166 (Harper); Fromm, *Man for Himself*, 44-48, *Escape from Freedom*, 1941, 266-268, 294 (Farrar); John Galsworthy, *Captives*, 1923, 53-74 (Scribner); John M. Mecklin, *My Quest for Freedom*, 1945 (Scribner).

often are *repressed* by the social group, whether that be family, church, or other social organization."⁵⁸

In many instances, an ideal becomes so central to an individual's life that if he loses it he becomes badly disintegrated, and he remains so until he discovers some acceptable ideal through which he can organize his life.

Thought and Purpose

Thought. We have suggested already that thought is integral to such important motives as wishes, purposes, curiosity, egoism, altruism, and idealism. Though often complicated with other factors, thought itself is naturally caused, and is naturally causal of action. In a later chapter, we shall consider various kinds of thought. Here it is sufficient to note that thought does motivate; that some kinds of thought motivate strongly; and that a most strongly motivating kind enters into purpose.

Purpose. Likewise in a later chapter, we shall consider purpose as naturally caused through learning, also as motivating to action.

The Urge to Integration

Apparently inseparable from living is a general urge to integration, integration of the individual in himself. Though this urge recedes at times, for example, when the individual goes to sleep, throughout waking life it expresses the general tendency to secure maximal integration. The person suffering from conflict, the doubting student who craves truth, the toiler who would escape from insignificant work to significant work, and the mentally disordered person who wants to get well, all show this urge to integration.

In Japan, a native student was pondering the different ethical programs, oriental, occidental, religious, secular, that are offered to mankind. When he heard about Ittoen, a communal brotherhood practicing humility and service, he journeyed there to see how it worked. An American woman who was a resident member of the brotherhood explained the organization to him, and showed him the members doing manual tasks for the public good. Soon afterward he wrote to her:

⁵⁸ Adapted from Henry E. Starr, *The Search Quarterly*, 1934, 4:10-11. For experimental proof of idealism as a motive in college students, cf. Milton H. Erickson, *Psychiatry*, 1939, 2:399-411.

"Dear Miss _____:

"I am confused now yet, so I don't know what should I say. I mean I don't know what I am wishing to say.

"I had been lingering, but I could not be convinced at all that I must live in such a way, for I could not understand Ittoen. I could not see they are spending their practical lives in ideal ways. (Though I should practice it in order to realize the fact.) Beside that it would be rash of me if I cast away my study now. I have not studied much. So the many are left for me to study. I should read, study them, I should have some hope in doing so.

"During my stay there, I felt much, and I am still in the dark what they were. As I have no unity in my mind, I felt even one thing in various ways.

"I am afraid that I have been senseless

"As I could not be so patient, so strong, so great, so good, as God, I should endeavor to be humble now, accepting anything without complaint. But I am afraid I can not complete it at all. I turn a treadmill forever.

"I sometimes wished to be reprov'd. As I felt really sinful, proud, etc., myself, I some-times wished to cry. For I was solitary, this was not the world which I was seeking.

"In any way I am very grateful for you, though I can not express why in words, beside that you were very kind. Here I say to you good-bye which I could not accomplish not being fortunate enough: I sincerely wish you blessed

"Yours sincerely,
_____." 59

Fromm observed that many a "modern" person who has lost his bonds with nature, social group, and sacred authorities feels so insecure that he retreats easily into some new bondage. The way out is for the man to be "free and yet not alone, critical and yet not filled with doubts, independent and yet an integrated part of mankind. This freedom man can attain by the realization of his self, by being himself." "Positive freedom consists in the spontaneous activity of the total, integrated personality." 60 Men naturally seek such freedom.

The Urge to Superindividual Integration

Another general urge often evident is an urge to become part of a superindividual whole. As Angyal said, this whole may be a family,

59 Communicated by Teresina Rowell.

60 Adapted from Fromm, *Escape from Freedom*, 256-258.

a gang, a society, the race, all living things, a culture, a cause, or the cosmic order. Whatever the whole, the person seeks to share and participate in it and to become one with it. In so doing, he advances considerably from stimulations and responses to impressions and expressions; from cravings to longings; from satiations to satisfaction; from dominations and submissions to cooperation; from uncertainty to certainty; and from the particular to the universal. "Pure manifestations of this trend may be rare, but in combination with other trends it is a practically constant co-determinant of behavior." We shall call it the urge to superindividual integration.⁶¹

Angyal pointed out that some expression of this urge "is absolutely necessary for normal adjustment. Self-centeredness, being wrapped up in oneself, inability to 'loosen up,' to get out of oneself, is a well-recognized characteristic of many forms of personality disorder. In such persons there seems to be a fear of self-abandonment, as if the 'loosening up' would involve the peril of losing oneself or the destruction of the self. A person may be so much wrapped up in himself and so isolated from everything leading beyond his individuality that his own individual being is the whole world for him, and whatever happens in this individual sphere—since there is nothing which matters beyond this—assumes gigantic proportions. By experiencing oneself as a small part of the world, one is able to see one's own problem in a universal perspective and in a more or less correct proportion. The merging into superindividual wholes, the sharing and participation in larger units, is a powerful support of mental health."⁶²

Subconscious Motivation

Of the various types of motivation, some, such as structural, biochemical, and glandular motivation, are never conscious. Many habits and some other motives were conscious in the individual's past but are so no longer; yet they persist as motives. In abnormal cases, some motives formerly conscious have become relatively independent of the individual's main consciousness and persist as though conscious in their own right; and some motives which never have come within the in-

⁶¹ Abstracted largely from Angyal, op. cit., 170-174. Angyal called this urge "the trend toward homonymy." Cf. also Fromm, *Escape from Freedom*, 261-263; Spinoza's *Ethics*, especially as interpreted by Frederick Pollock; Edward Bellamy, *The Religion of Solidarity*, 1940 (Antioch Bookplate).

⁶² Adapted from Angyal, op. cit., 179-180.

dividual's main consciousness likewise develop and function as though conscious. All these types of motivation we shall call subconscious; as will appear in the chapter on The Subconscious.

Motivation and Integration

If motivation means any readiness to react, also the immediate causes of that readiness; and if integration means coordinated, rich, unified, and stable functioning, integration is a high form of motivation.

Thus, integration for living brings with it general motivation for living. Such integration often comes through finding a solution for some long-standing conflict.

Conversely, as motivation of any activity that concerns *the whole individual* increases, integration increases.

Rush observed that, during the American Revolution, "many persons of infirm and delicate habits were restored to perfect health, by the change of place, or occupation, to which the war exposed them. This was the case in a more especial manner with hysterical women, who were much interested in the successful issue of the contest. The same effects of a civil war were observed by Dr. Cullen in Scotland, in the years 1745 to 1746. It may perhaps help to extend our ideas of the influence of the passions upon diseases to add, that when either love, jealousy, grief, or devotion wholly engross the female mind, they seldom fail, in like manner, to cure or suspend hysterical complaints."⁶³ Similar observations have been made of the male mind.⁶⁴ A functionally blind person who finds himself where he must see, if he is to live, commonly sees. At least one case of multiple personality has become reintegrated through strong and insistent motivation; in this instance, through having to bring up a family.⁶⁵ Drunken persons are often steadied by emergencies. Psychotic patients who seek privileges make better scores on mental tests than they are able to live up to. Even cerebral-injury cases "pull up" likewise when sufficiently motivated.⁶⁶

Such observations suggest the mental hygiene value of some inclusive interest or pattern of interests through which the individual can organize his life.⁶⁷

⁶³ Benjamin Rush, *Medical Inquiries and Observations*, 1805, 6:288 (Philadelphia).

⁶⁴ Communicated by Bohdan Zawadzki.

⁶⁵ Cornelius C. Wholey, *Am. J. Psychiat.*, 1933, 12:653-687.

⁶⁶ *PA* 6 2352, 4405.

⁶⁷ Cf. Abraham Myerson, *Speaking of Man*, 1950, 191 ff. (Knopf).

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7 Reactions

This talk of ordering and distinguishing, which has no merit, when performed with regard to external bodies, the objects of our senses, rises in its value, when directed towards the operations of the mind, in proportion to the difficulty and labour, which we meet with in performing it. And if we can go no farther than this mental geography, or delineation of the distinct parts and powers of the mind, it is at least a satisfaction to go so far; and the more obvious this science may appear (and it is by no means obvious) the more contemptible still must the ignorance of it be esteemed, in all pretenders to learning and philosophy.

David Hume

Given motivation, reactions follow. Examples of reactions are breathing, eating, feeling pleasantness, hearing, fright, laughter, thought, muscular activity, and esthetic appreciation.

Why does one reaction occur instead of another?

Toward answering this question, we undertake now to group the various reactions into several, somewhat overlapping, classes; to consider how some of these classes work; and to suggest possible dynamic relations between the classes.

Basic Reflexes

The student knows that there are many basic reflexes—breathing, pupillary contraction, winking, knee jerk, elementary reactions from pain, and so on; that they are touched off through excitations; and that,

in general, they have proved useful to life. Some of these reflexes, such as the Moro reflex, and the startle pattern demonstrated by Landis and Hunt,¹ are quite complex.

Appetitive Reactions

Appetitive reactions fall into two general groups, though the two groups overlap somewhat in neural mechanisms and in introspective components.

Alimentative reactions. These reactions involve essentially the alimentative organs. Sucking, chewing, swallowing, peristalsis, elimination, also spitting, vomiting, and simple disgust come in this class. All of these are initiated natively by stimuli and by conditions of the body.

Thumb-sucking and gum-chewing are more or less aberrant alimentative reactions.

Sexual reactions. The sexual reactions, as we have seen, involve essentially the reproductive system. This system includes the genitalia and any other inherently erotic zones. For the new mother, nursing may be highly erotic for the first day or two. For all adults, apparently, the genital and the nasal tissues are functionally related; some individuals feel inner nasal "erection" prior to or concurrently with genital erection.² All these reactions, like the alimentative, are initiated natively by stimuli and by conditions of the body.

Masturbation, whether physical or mental (through thinking erotically stimulating thoughts), involves this group.

Hedonic Reactions

In the general sense of the term, "affective" includes emotional reactions, also reactions that are affective in the special sense of pleasantness or unpleasantness. As we know, the term "hedonic" is available for this latter group. Perhaps pleasantness and unpleasantness are essentially primitive reactions, out of which others have developed but which continue to function along with the other reactions. Perhaps, too, pleasantness is an accompaniment of unimpeded other reaction, and unpleasantness, of impeded reaction.³ In any event, it seems useful

¹ PA 13 3049.

² PA 6 3155. Cf. also PA 5 3137.

³ Cf. J. P. Shea, *Psychol. Bull.*, 1937, 34:755; Joshua Rosett, *The Mechanism of Thought, Imagery, and Hallucination*, 1939, 90 (Columbia Univ. Press).

to recognize such predominantly hedonic reactions as indulgence in the "blues," and concentration upon the "pleasantness" of every item that comes up in a journey or a conversation. Certain pathological states of depression and of euphoria seem to involve the hedonic reactions markedly.

Sensory Reactions

The category. It is more usual to think of sensory events in mental life as processes than as reactions; processes that lead to reactions. Many sensory processes, however, involve consciousness, and so involve reactions of the central mechanism to afferent excitation. When such central reactions are complex and interpretive, we call them *perceptual* reactions; but when the central reactions are relatively simple, we may well call them *sensory* reactions. That this is a distinguishable category of reactions appears from the way a person who has been baffled by unsolved personal problems may walk idly through the woods, sit by a waterfall, or lie on the beach, preoccupied with little more than his sensory reactions.

Pain. A special type of sensory reaction is pain.

From the point of view of evolution, some workers think pain developed from unpleasantness; and others, from emergency emotion. Janet, noticing how pain fails to occur in certain dissociated individuals, considered pain a function of synthetic consciousness. Perhaps all these views are right: perhaps, when things go very wrong, all animals experience unpleasantness, all animals except the lowest experience also emergency emotion, and all the higher animals, so long as well integrated, experience pain.

As for the mechanism of pain, the most common theory traces pain to stimulation of the "free nerve endings." Since there are a number of anatomical and physiological difficulties in this theory, various students have sought to explain pain as a special summative or other involvement of the central nervous system. Thus Harrington suggested that *any* intense excitation, whether of sensation or emotion or craving, may cause neural "overflow" into, and excitation of, the pain tracts in the cord and through them, he assumed, excitation of cerebral centers for pain.

Harrington's view would explain not only physical pain but also the "mental pain" that comes from grief, from acute conflict, and from extreme excitement and joy.

"The mother, when her emotion is sufficiently intense, experiences, in the possession of her child, an ecstasy that contains an element of pain. The ardent lover may say, 'It hurts to love so much,' even when he is permitted to give full expression to his love. There may be pain even in the strong emotion aroused on seeing something that we much desire brought suddenly and unexpectedly within our grasp." The layman speaks of toothache and heartache, burning with fire and burning with anger, a cutting knife and a cutting remark, a gnawing cancer and a gnawing grief, a heavy blow and a heavy loss, sharp thorns and sharp words, and so on. Perhaps the terms are used thus for essentially a common process.

Janet's conception of pain as dependent upon high integration may explain why pain sometimes disappears as integration declines. Indeed, pain sometimes disrupts integration, and therewith the pain itself. Perhaps the pain centers assumed by Harrington are rather easily inhibited or dissociated.⁴

Whatever be the mechanism of pain, learning often plays a part. Within certain limits, the individual may learn to arouse pain in himself by physical means or by mental means; he may learn to resort to pain, either for some good associated with it or to escape from something he feels is worse than pain; or he may learn to inhibit pain;—as will appear in later pages.

Emergency Emotions

The category. An emergency emotion, we said, is a stirred-up state of the organism that occurs when the individual feels severely hurt, thwarted, or threatened; a stirred-up state from what seems, at the moment, an emergency. The principal emotions in this group are excite-

⁴ Cf. John Paul Nafe, in *Handbook of Experimental Psychology* (Carl Murchison, ed.), 1934, 1058 ff. (Clark Univ. Press); Pierre Janet, *The Mental State of Hystericals*, 1901, 53-56 (Putnam); Milton Harrington, *A Biological Approach to the Problem of Abnormal Behavior*, 1938, 157-185, 210 ff., quoting 181 (Science Press).

Some support for Harrington's view appears in the observation that pain from heat applied to the skin depends not only upon the amount but also upon the rate of temperature rise. (J. D. Hardy, H. G. Wolff, and H. Goodell, *Am. J. Physiol.*, 1939, 126:523-524.)

Recent research indicates that the receptors for hearing, at least, do not thus produce pain. (Laurence Joseph Stone and William Leroy Jenkins, *Psychol. Bull.*, 1940, 37:286.) Perhaps there are exceptions to the principle urged by Harrington, or perhaps the whole hypothesis will some day be disproved.

Conceivably, referred pains, even in the skin, may derive from overflow of excitation into tracts connected with those areas. (Stone and Jenkins, 289, 291.)

The fact that alcohol decreases sensitivity to pain more than to touch would seem to support Janet's view. (F. J. Mullin and A. B. Luckhardt, *Am. J. Physiol.*, 1934, 109:77-78.)

ment, anger (including rage and fury), agitation, and fear (including anxiety and terror). These emotions enter also into grief, sadness, and several other affective reactions.

That the emergency emotions are an important category seems clear from daily experience, also from the fact that in certain diseased conditions these emotions are the dominant reactions. In hyperthyroidism, for example, the clinical picture is largely one of emergency emotion.

Conditions of arousal. A party of men and women on a small pleasure boat were startled by the noise of cannon at a nearby fort. As the noise continued, most of the passengers showed either anxiety or anger. Apparently these people were disturbed by the noise, also by being kept from thinking and conversing as they wished. Emergency emotions are aroused likewise by great pain, unsatisfied hunger, failure to overcome an enemy, accumulation of setbacks, and various other emergency situations. In all such situations, what are the common conditions of arousal of the emotions?

In every case, it seems, the individual is much aroused but is more or less unready to meet the situation; for the moment, at least, he has "no way out." Stated more psychologically, the conditions of arousal of the emergency emotions seem to reduce to *great general excitation and incomplete adjustmental readiness*.⁵

In this formulation, "general excitation" means active *readiness to react* which is general in both senses: it is widespread throughout the person and it tends to various reactions. A current term for such excitation is "general tension." Thus, a great noise produces, in most people, widespread excitation to react "all over," also, perhaps, at once to withdraw from the noise, to approach and investigate it, to act in whatever ways have been associated with like noises in the past, and to continue whatever was being done when the noise began. Here the various reactions conflict with one another. Again, whenever one perceives a threat to any object to which one is greatly devoted, one is aroused throughout to react in various ways, likely including ways that might help the object. Thus the excitation is general.

"Adjustmental readiness" means something more than the "readiness to react" which defines any motive. "Adjustmental readiness"

⁵ Physiologically, perhaps there are some of the "stress reactions" observed by Selye and others—reactions involving the biochemicals STH, mineralo-corticoids, ACTH, and glucocorticoids. Cf. Hans Selye, *Annual Report on Stress*, 1952 (Acta med. Publ., Montreal).

means *readiness to adjust*, to react in such a way as to forestall general excitation. For example, a person may avoid general excitation from a noise by going away from it, by stopping it, or even, within limits, by understanding it or by learning somehow to get along calmly with it. The devoted person may avoid general excitation from a threat to his object by removing the threat, or protecting the object, or perhaps by reinterpreting the whole situation. The "readiness" referred to is felt by the individual concerned; it may be illusory; but so long as the individual feels ready, he enjoys what we are calling adjustmental readiness.

Quite possibly the two factors, general excitation and adjustmental readiness, are interrelated: greatly increased general excitation often reduces adjustmental readiness by "upsetting" the organism, and reduced adjustmental readiness often increases general excitation by keeping the organism "pent up"; for example, extreme hunger may so disrupt one's manners that one does not get invited to dinner, and not knowing how to obtain food makes one restless. Still, the two factors seem sufficiently separate to allow either one to be varied primarily, as often appears in daily life.

The first condition, great general excitation, may derive from what is, for the individual at the moment, great stimulation, appetite, fondness, or any strong, active motivation.

Ordinarily, a person who hears a great noise experiences general excitation. The person who is playing golf "to win," say, to overcome a feeling of inferiority, is much more likely to be angered by a misstroke than is the one who is playing merely "for fun"; the latter player is not so keyed up with general excitation.

The other condition, incomplete adjustmental readiness, may come from natively low reactivity; from lowered reactivity through fatigue or other untoward organic state; from inadequate learning or set; or from unadaptive preoccupation, including conflicts.⁶

In one experiment, a young man was deprived of sleep continuously (except for three accidental naps totaling two hours and twenty

⁶ Cf. Floyd Henry Allport, *Social Psychology*, 1924, 94 (Houghton Mifflin); Harrington, op. cit., 224 circa; PA 14 2364, 22 4284. As Guthrie remarked, "If we mean by 'true love' a state of great excitement, its course never could run smooth because with smooth running and without obstacles or conflicting habits, no excitement can appear." (Edwin R. Guthrie, *The Psychology of Human Conflict: The Clash of Motives within the Individual*, 1938, 113, Harper.) Le Pois made much of "perturbations of the mind, whether terror, or joy rising unexpectedly." (*Selectiorum Observationum, etc.*, 1618, 134.)

minutes) for five days. In that time he became highly irritable and unable to control anger. "He broke forth in a tirade when his wishes were thwarted or when he thought that something was making the experiment more difficult for him. It became increasingly difficult to get him to accept any suggestions concerning the experiment or himself. The irritability and disorientation gave a total picture similar to that of a person who when mildly intoxicated is irritable, irascible, or argumentative."⁷

When a commuter who is hurrying out of his house to catch a train finds that a door sticks, he likely expresses emergency emotion, as his adjustmental readiness to catch the train is reduced. When a carpenter who has been asked to fix the same door comes to it, he does not express emergency emotion—his adjustmental readiness to ply his trade remains complete. When two new men in a barracks, one an ordinary fellow, and the other an expert wrestler, are subjected to horse-play by the others, the ordinary one may lose his temper, while the expert good-naturedly folds up his opponents. An inexperienced driver tends to outgrow his anger reactions to traffic puzzles as he learns how to solve or avoid those puzzles. Battle frightens the raw recruit much more than the soldier who has learned how to understand and execute orders easily and to disregard the noise and casualties. The crash of the stock market in 1929, Allen observed, "might not have been utterly terrifying if people could have known precisely what was happening at any moment."⁸ Not knowing what is happening means not knowing what to do, which means lack of adjustmental readiness.

Obstacles create great general excitation and incomplete adjustmental readiness through presenting new stimuli, overweighing native reactivity, increasing fatigue, or initiating conflicts between possible actions.

Individual differences in emergency emotion arise from different native capacities and from nurture, including learning. Idiots' anger is largely about food or other aspects of their physical being, and is infrequent and short. Morons and borderline cases get angry for those same causes but also from quarrels and insults; and the anger may last longer.⁹ Many intellectual persons are angered by physical factors, by

⁷ Adapted from S. E. Katz and Carney Landis, *Arch. Neurol. and Psychiat.*, 1935, 34:310, 313. Cf. Pierre Janet, *Psychological Healing*, 1925, 269, 298, 399, 400 (Macmillan).

⁸ Frederick Lewis Allen, *Only Yesterday: An Informal History of the Nineteen-Twenties*, 1931, 327 (Harper).

⁹ Beulah M. Morrison, *Univ. of Calif. Publications in Psychol.*, 1924, 3:73-145.

quarrels and insults, by uncongenial news items, and by threats to cherished articles, persons, programs and ideals. At any level of intelligence, as we have seen, some individuals are better integrated than others, hence maintain better adjustmental readiness, and so are less subject to anger. Similar differences can be made out for the other emotions. Through learning, general excitation aroused originally by a strong stimulus or other active motivation can become so intensely associated with the given situation that afterwards the situation itself calls forth the excitation. Likewise, the lowered adjustmental readiness caused originally by fatigue or unadaptive preoccupation may become so associated that the situation touches off much the same lowered readiness thereafter.

Whatever the immediate causes, the emergency emotions seem to occur only when great general excitation combines with incomplete adjustmental readiness.

Different emergency emotions. Different emotions in this group involve so many of the same reactions in many people, and different individuals express the same emotion in such different ways, that it is not always easy to distinguish between the various emotions. As Meltzer observed, "Strictly speaking there seems to be no such thing as an anger response. There are as many different manifestations as there are configurations of behavior patterns and social situations." The manifestations among college students include "excited talking or angry exclamation," "angry, sarcastic or sulky retort," "a pleasant reply," "restless behavior," "refusal to speak," "refusal of food," "violence to offender," "tears in eyes, stamping of foot, and the clenching of teeth and hands"; some of these manifestations being reported more often by women than by men.¹⁰ Individuals even learn to react "as if" they had the appropriate or expected emotions.¹¹

Nevertheless, after allowing for various learned and other complications of emotional responses, it seems possible to recognize a continuous series of emergency emotions and to distinguish roughly between several emotions within that series. These several emotions we have called excitement, anger, agitation, and fear, in their various degrees; together with, in part, grief, sadness, and some others.

¹⁰ H. Meltzer, *J. Soc. Psychol.*, 1933, 4:306, 297.

¹¹ PA 9 2629.

Differentiation of the several emergency emotions. We assume that these emotions are distinguishable from one another through four concurrent criteria. These criteria are (1) adjustmental readiness; (2) disintegrativeness; (3) physical changes; and (4), as a neurological hypothesis, ratio of activity of the middle division of the autonomic nervous system to other neural activities. Perhaps there are more than four criteria, and quite likely these four are vitally interrelated; yet the four seem to bring the emergency emotions into some order.¹²

The first criterion is *adjustmental readiness*. This criterion we shall call simply, in the present context, readiness.

Within the series of emergency emotions, such readiness seems greatest in excitement. In excitement, the individual is "generally aroused," but he is not *overcome* with emotion; he feels relatively secure, able to deal with the situation; and, so long as he feels so, he remains above the other emotions in the series. In anger, the individual is *overcome* with emotion, yet not too seriously, for he feels fairly ready to deal with the situation through fighting well. Sometimes he fights so well, not necessarily physically, that his reaction becomes little more than effective work. Therewith, his anger wanes. In agitation, he enjoys less readiness; he is more desperate; and he fights less well, if he is not too fearful to fight at all. In fear, he is still less ready to meet the situation; perhaps the best he can do is to run. In the most extreme fear, namely, terror, his readiness is least; perhaps he cannot even run.

The second criterion is *disintegrativeness* as judged both introspectively and behaviorally. According to this criterion, the least disintegrative emotion is excitement; in excitement the individual is keyed up but not unduly disturbed; his functioning remains fairly coordinated, rich, unified, and even stable. In anger he is more keyed up and more disturbed—anger is more disintegrative than excitement. Agitation is still more disintegrative. Fear is so disintegrative that his functioning, though perhaps intense, is markedly disorganized, limited, scattered, or erratic, or all of these together. The most disintegrative degree of fear is terror. In terror, the individual's "thoughts are scattered," he gets "foolishly single-tracked" or "completely off the track," his "mind becomes a blank," or he faints. His coordinations become confused, limited, or generally arrested. He is "frozen" or "paralyzed" with terror.

¹² Other suggested criteria include pleasantness-unpleasantness and what the organism is doing about the external situation. Both of these, however, so far as useful, seem implicit in the above list. Cf. Note 3, above.

Indeed, if he is sufficiently terrified and is about to be anesthetized for an operation, he may suffer fatal shock before inhaling any of the anesthetic.¹³

The third criterion is *physical changes*. Though these changes are not sharply distinguishable for every emotion in the series, differences at the extremes are marked. Excitement shows only a general glow. Anger which is not too extreme involves a flushed face, deep respiration, muscular activity, and salivation. At the other end of the scale, extreme fear involves pallor, arrested respiration, tremor, immobility, and dryness of mouth.¹⁴

The fourth and last criterion is *ratio of activity of the mid-division of the autonomic nervous system to other neural activities*. The mid-division of the autonomic nervous system is the division most active in connection with adrenal secretion and the related bodily changes in all the emergency emotions. The other neural activities referred to include those of any other neural structures that may be active at the time; for example, the neural activities involved in muscular readiness.

Various observations suggest that, relative to other neural activities at the time, the mid-division is least active in excitement, and more active, successively, in anger, agitation, and fear. Thus, in anger, the remaining neural activities offset those of the mid-division sufficiently to make the individual flush, breathe deeply, act vigorously, and even froth at the mouth. In terror, on the other hand, the individual becomes pale, breathes little, trembles, stays in one position, and has a dry mouth. In great excitement, there may be *absolutely more* mid-division activity than in mild fear, or in fear when the individual is "not much awake"; yet the *ratio* of mid-division to other neural activities remains less in any excitement than in any fear, because in excitement the other neural activities are not outweighed as they are in fear.

Anxiety, as we interpret it, occurs with less excitation and slightly more adjustmental readiness than most other degrees of fear. Nevertheless, anxiety's marked unreadiness, disintegrativeness, physical changes, and supposed mid-division activity relative to other neural activities classify it as a form of fear.

Grief and sadness seem to combine emergency emotions with facio-respiratory reactions, also to implicate some further factors. As judged

¹³ Anonymous, *Lancet*, 1928, 214:1133.

¹⁴ J. P. McGonigal, *Psychol. Rev.*, 1920, 27:73-80. Cf. also PA 3 84, 17 4125, 19 1450, 21 427, 25 2877; Magda B. Arnold, in Martin L. Reymert (ed.), *Feelings and Emotions*, 1950 (McGraw-Hill).

by the same four criteria, grief and sadness appear less akin to excitement than to fear; in that grief and sadness seem to show relative unreadiness, disintegrativeness, physical constriction, and involvement of the mid-division of the autonomic system. Of the two emotions, grief seems the closer to fear.

The question of utility. Under average *primitive* conditions, the emergency emotions seem useful. Energization from excitement, anger, and perhaps agitation helps the individual to defeat, frighten, or escape the enemy. The immobility of extreme fear, terror, helps him to escape detection. Moreover, all the emergency emotions profoundly affect learning, within certain limits. Cannon and Britton suggested also that "it is sound doctrine that the organism profits by the exercise of the functions of its parts. The deep stirring and unsettling of the routine of quiet existence, wrought by great excitement, may be as important for proper service of the viscera as is work for the proper service of the muscles. One might argue, therefore, that occasional intense excitement is a physiological need. Strong physical effort, however, can influence the viscera perhaps nearly as well as excitement alone. Exertion is favorable to bodily welfare not only by bringing into use the muscular mechanisms, but also by requiring those internal adjustments, commonly the consequences of emotional excitement, which contribute to muscular efficiency."¹⁵

This statement seems to apply to excitement, in our sense of the term, rather than to the more severe emergency emotions. As Cannon and others have pointed out, under modern conditions the severe emotions waste energy and interfere with health. Most people know that emergency emotions block digestion. Mittelman and Wolff showed that patients suffering from gastric neurosis and peptic ulcer, when angered, soon have more acid and occasionally blood in their stomach contents.¹⁶ Most people have learned, too, that these emotions discoordinate the finer adjustments at least, favor preoccupation with the emotion and its associations instead of with constructive things, and lead to regrets. Moreover, it seems clear that strong emergency emotion involves and tends to fixate dissociation. Apparently we should hold to President Charles W. Eliot's rule, "Keep as calm under all circumstances as your nature permits."

¹⁵ Adapted from W. B. Cannon and S. W. Britton, *J. Physiol.*, 1927, 79:462 (Cambridge Univ. Press).

¹⁶ Béla Mittelman and Harold G. Wolff, *Psychol. Bull.*, 1940, 37:441, *Psychosom. Med.*, 1942, 4:5-61.

Faciorespiratory Reactions

The category. The term "faciorespiratory"¹⁷ we take to apply to those reactions which involve, in various combinations, particularly the facial, vocal, and respiratory muscles and the tear glands. These reactions include smiling and laughing; howling and yelling; weeping and sobbing, both of which are called crying; also, to some extent, singing and vigorous speech. For the present discussion, let us consider especially laughter and crying.

Everyday evidence for the category. Laughter and crying appear to be closely related to each other. When extreme, they look alike and sound alike and may become indistinguishable. Many a mother has asked, "Is that child crying or only laughing?" Even the conditions of their arousal are not always readily distinguishable. People sometimes cry when relieved. Sometimes they cry for "joy," or laugh with "grief"; which probably means that they cry or laugh in situations which, when more adequately perceived, cause joy or grief. The person who becomes "hysterical," in the popular sense of that term, may alternately laugh and cry. "The patient under nitrous oxide," said Cannon, "may have expressions from the emotional level in laughter or tears, for the anesthesiologists say that laughing gas might quite as reasonably be called weeping gas."¹⁸ We have heard of great humorists who were, much of the time, profoundly melancholy.

One baby, ten or twelve months old, when quiet but tired at the end of a day, could be made to laugh at the usual things, but then her laughter turned into crying and continued as crying. Thus her father learned not to make her laugh when she was tired.

The story is told of a man who was so melancholy that he went to a psychiatrist for help. "I have just the prescription for you," replied the doctor. "You go and hear that famous humorist who is coming to the Auditorium this evening." "But, Doctor," replied the sufferer, "I am that humorist."

Neurological and pathological evidence. That laughter and crying may be classified together as faciorespiratory reactions appears also from neurological evidence. Without going into detail, we may say

¹⁷ Introduced by S. A. Kinnier Wilson, *Modern Problems in Neurology*, 1928 (E. Arnold).

¹⁸ Cannon, *Sci. Mon.*, 1934, 38:103-104.

simply that there seem to be specific, closely associated neural centers for laughter and crying, centers with efferent paths different from those used in voluntarily controlling these reactions.¹⁹

Pathology likewise supports the classification. Chronic cases of laughter, of crying, and of both reactions, occurring even apart from mood, are well known.²⁰

Conditions of arousal. As various writers have suggested, laughter and crying occur when general excitation, lacking other outlet, utilizes the faciorespiratory mechanisms.²¹ Apparently these mechanisms are so utilized, barring special organic complications and learning, whenever the individual has *medium general excitation and medium-to-slight adjustmental readiness*.

Thus the general conditions of arousal of laughter and crying differ from those of the emergency emotions in that laughter and crying need not *great*, but *medium* general excitation; and not merely *incomplete*, but, more specifically, *medium-to-slight* adjustmental readiness.

The medium excitation and medium-to-slight readiness occur ordinarily with sheer *good health and spirits*. Healthy young babies cry; very sickly ones do not. Healthy older babies laugh as sickly ones do not. During World War I, undernourished children who were not too weak played, but played with straight faces; only as their energies returned did they begin to laugh as they played.²² Greatly depressed patients often do not cry until they are somewhat improved. Many a person crushed with grief or disappointment is dry-eyed until some encouraging sympathy, hope, or relief enlivens him to cry.

It is true that faciorespiratory reactions are marked in many subjects who lack normal health and spirits. Some organically diseased patients laugh, and some cry, much of the time and for no apparent reason; and some matter-of-fact individuals laugh or cry inordinately when drunk,

¹⁹ Wilson, *op. cit.*, 261 ff.

²⁰ *Ibid.* Cf. also Joshua Rosett, *op. cit.*, 94-95.

²¹ Cf. H. N. Gardiner, Ruth Clark Metcalf, and John G. Beebe-Center, *Feeling and Emotion: A History of Theories*, 1937, 373, 379 (American Book); George W. Crile, *The Origin and Nature of the Emotions*, 1915 (Saunders); *Man: An Adaptive Mechanism*, 1916 (Macmillan); Ransom Carpenter, *Am. J. Psychol.*, 1922, 33:419-420; Robert H. Thouless, *General and Social Psychology: A Textbook for Students of Economics and of the Social Sciences*, 1937, 207 (Univ. Tutorial Press); Harrington, *op. cit.*, 233 ff.

Cf. the observation that young deaf children spontaneously express simple inquiry most often by gesture alone, but desire, wish, or explanation involving excitement or tension, by gesture with vocalization. (Fritz K. and Grace Moore Heider, *Psychol. Monog.*, 1940, 52:No. 1, 122.)

²² Editorial, *Lancet*, 1919, 2:657.

weak, or fatigued. Perhaps such cases can be explained by obscure organic conditions which induce faciorespiratory reactions, either directly, or through arousing what the subject feels as medium general excitation and medium-to-slight readiness.

The same general conditions of arousal occur with *some thwarted excitation*. Any appetitive, affective, or other excitation which is denied its normal outlet may make the individual giggly, tearful, or even "hysterical."

The requisite conditions occur likewise with *sudden, moderate changes in ordinary situations*. Such changes include:

(1) Sensory excitation. A gentle tickle makes almost anyone laugh. Babies, and many others, laugh upon hearing toy rattles, small bells, little splashes of water, and light handclaps. Visual and other sensory excitations work similarly. If, however, the tickling, the sound, or any excitation becomes intense, the laughter passes into emergency emotion, perhaps through crying.

The baby cited above could be made to laugh whenever her father, standing by her crib, jumped upwards a little; but whenever he jumped more than about three inches, she was startled.

(2) Other forms of excitation. Children laugh when they are released from school. Rebellious spirits laugh when they behold broken conventions, injured authority, or punctured pomposity.²³ Sudden good fortune may stir up laughter or crying or a mixture of the two. Sudden truth revealed from the apparently trivial arouses like reactions.

(3) Disruption of preoccupation. Possibly from health, sensory, and other excitation, amateurs who go out to ski often laugh until they become absorbed in skiing; then they laugh when they fall. Faciorespiratory reactions occur in the worker who discovers that he has finished his task; in the mother who, watching over her sick child, perceives that the crisis is past; and in anyone who finds that something which seemed serious is not serious.

Disruption of preoccupation, often with added sensory or other excitation, accounts for surprise, or incongruity, the essence of the comic, wit, and humor. Examples include the ordinary joke, with its unexpected outcome; the Irish bull, with its incompatible statements; the pun, whose meanings are incompatible; the spoonerism, a conflict between context and words; the overstatement, which seems too large

²³ Sigmund Freud, *Wit and the Unconscious* (Brill, tr.), 1916 (Moffat).

for the facts; the understatement, which seems too small; leap from the sublime to the commonplace, and vice versa; clash between wisdom and folly; contrast between maturity and immaturity, like justices at a college reunion playing marbles, parents playing school, or children imitating adults; seeing the animate behave like the inanimate, as Bergson pointed out,²⁴ also seeing the inanimate behave like the animate;²⁵ contrast between others' misfortune and the observer's good fortune;²⁶ and contrast between one's own folly, immaturity, awkwardness, misfortune, or undeserved fortune, and one's own good perspective.

According to Hazlitt, only man laughs and weeps, because only man sees how things differ from what they ought to be. Perhaps it is not quite true that only man laughs and weeps, for something like these reactions appears in apes and other animals; nevertheless, man's power to perceive contradictions seems to release excitation which, lacking other ready reaction, sets off man's faciorespiratory reactions.

Utility of laughter and crying. From what has been said about the conditions of arousal of laughter and crying, it follows that these reactions are immediately useful for disposing of extra excitation. Following out some suggestions from Crile, we can see that it should be so. Our anthropoid ancestors, when up in trees, must often have been excited by prehistoric beasts on the ground below. This excitation was too great to be relieved by basic reflexes, appetitive reactions, hedonic reactions, sensory reactions, or any combination of these; strong emergency-emotional reactions would have been wasteful or dangerously discoordination; thought was undeveloped; and skeletal-muscular activities were limited by having to stay out of reach. The faciorespiratory mechanisms, however, were considerably developed, were relatively independent of the perching mechanisms, and served well to relieve the tension. As the species evolved further, meeting always new complexities, the faciorespiratory apparatus evolved also, and continued to relieve general excitations. Thus the phrases "comic relief" and "relief through tears" point to the primary use of laughter and crying.

²⁴ Cf. his *Laughter: An Essay on the Meaning of the Comic* (Brereton and Rothwell, trs.), 1911 (Macmillan).

²⁵ Communicated by David Camp Rogers.

²⁶ Cf. Hobbes's theory that "sudden glory is the passion which maketh those grimaces called laughter"—glory caused in the laughers "either by some sudden act of their own, that pleaseth them; or by the apprehension of some deformed thing in another, by comparison whereof they suddenly applaud themselves. And it is incident most to them, that are conscious of the fewest abilities in themselves; who are forced to keep themselves in their own favor, by observing the imperfections of other men." (*Leviathan*, Part I, Ch. VI.)

Besides relieving tension, the faciorespiratory reactions are useful for communication. It was fortunate for our prehistoric ancestors that tickling aroused noticeable faciorespiratory reactions, because the tickling might be from an enemy threatening vital organs, and the faciorespiratory reactions would call the attention of parents or associates. Various other excitations—sensory, appetitive, affective, and learned—including all surprises and incongruities, were likewise worth indicating by crying, laughter, or smiling, at least. With continued evolution, interjections and language developed to point more specifically to sources of motivation. Along with that evolution, crying and laughter have become more controlled and more conventionalized.

Some students of laughter have thought that laughter could never occur apart from society—that the hypothetical man brought up entirely alone would never laugh. Such students assume that we laugh to cover up the painful or the embarrassing, or to increase sympathy and fellowship within the group. Undoubtedly, we do so laugh; but careful study of kindergarten children has shown that “laughter at that age is not a social gesture. Sudden changes affecting the individual’s preconceived standards concerning the behavior, sound, or appearance of persons and things result in temporary mental maladjustment. Such deviations from the established norms call for immediate attempt at adjustment by means of laughter, which is the child’s normal expression of well-being.”²⁷ Thus laughter seems only secondarily social and should be expected in the wholly isolated man.

Differences between laughter and crying. Although laughter and crying have much in common, they seem to differ from each other according to the same four criteria by which we distinguished between the several emergency emotions. They differ also in probable neural centers, in affective tone, and in effects upon the individual and upon his associates. Let us consider these several differences.

Adjustmental readiness, as we have defined it, is evidently greater in laughter than in crying. The laughing person is “overcome” with laughter only in that some of his reactions are overcome; ordinarily, he himself feels secure if not actually set up. The crying person, on the other hand, feels sufficiently hurt or thwarted to be overcome, yet not crushed, by his situation; though perhaps feeling better than before he began to cry, he still feels cast down.

²⁷ Grace E. Bird, *Psychol. Bull.*, 1936, 33:763.

The amount of sensory excitation that makes a healthy child laugh makes an unhealthy one cry. The healthy one is the more ready to deal with the excitation.

When a baby fails to catch a ball that is rolled to him, if he is rested, he laughs, but if he is tired, he cries. When he is rested, he remains sufficiently secure to enjoy seeing the ball go unexpected places; but when he is tired, the situation is too much for him.

One normal child laughs upon meeting a man with a beard, because it is a familiar situation for him. Another normal child cries upon meeting the same man, because, for him, it is a strange situation, perhaps associated with dangerous beasts. Upon becoming acquainted with the man, this child may pull his beard and thereafter may laugh upon meeting any man with a beard. Thus the child tends to laugh, instead of cry, as he becomes ready to meet the situation.

One man, upon suddenly becoming rich, laughs; another man likewise suddenly becoming rich, cries. Perhaps the second man feels less ready to manage his wealth; or perhaps his poverty has been so painful to him that he is not yet ready to laugh.

Others' sufferings induce laughter in persons who do not know how serious they are and who feel set up in contrast. The same sufferings stop laughter in those who do know and who therewith suffer reduced readiness to meet the situations contemplated.

Apart from learned or other complications, laughter would seem to occur more often in the person who feels generally successful than in the one who feels inadequate.

Few persons enjoy jokes on themselves as much as on others, because jokes on anyone tend to make that one appear less secure than the joker. The person who does enjoy jokes on himself is one who feels essentially secure; he is able to see himself in perspective, to play with the situation which involves him, and, if need be, to change that situation or his own attitude toward it; in other words, he is essentially ready. Thus "the saving sense of humor," or "the sanity of humor," is no less a cause than an effect of adjustmental readiness.

Humor is more subtle than either the comic or wit. The comic turns upon marked and often artificial contrasts between the expected and the actual. Wit involves quick and often artificial and severe contrasts of the same kind. Humor is less dramatic, less hurried, more close to the truth, and more humane. Gordon W. Allport observed that humor seems to develop concomitantly with insight. He also cited Meredith's definition of true humor as "the ability to laugh at the things one loves (including of course oneself and all that pertains to oneself), and still to love them." Spinoza taught that "he who clearly and distinctly understands himself feels pleasure"; that "the mind has greater power over

the emotions and is less subject thereto in so far as it understands all things as necessary"; and that such understanding makes for love.²⁸ Apparently, such understanding is a very high form of adjustmental readiness; and we do love, in the sense of feeling kindly toward, whatever we feel *wholly* ready to meet. Thus humor is distinguished from the comic and wit principally by degree of understanding.

Indeed, the degree of understanding in humor makes humor a combination of faciorespiratory and what we shall call thought reactions.

Though greater readiness makes for laughter instead of crying, often we cannot predict what reaction will occur in a given case. This is because we cannot gauge the individual's excitation, his readiness, and possible organic and learned complications. Organic complications may abnormally obstruct or arouse some paths of reaction. Learned complications include habits of laughing at a given joke or jokester; laughter or crying associated with any particular situation or excitation; imitative faciorespiratory reactions (through, we assume, association of the individual's own faciorespiratory reactions with the sight or sound of such reactions); and more or less voluntarily controlled reactions. Examples of the last group include the child who is ashamed to cry among outsiders but cries vociferously when in the bosom of his family; the socially considerate person who overcomes his impulse to cry by voluntarily smiling or laughing; the ones in some cultures who, to show sympathy, voluntarily cry;²⁹ and the many persons who have learned to express various degrees of excitation through laughter instead of other reactions.

Of the remaining differences between laughter and crying, *disintegrativeness* seems less in laughter than in crying. The laughing person may lose some old perspective, but often he gains a new one; and his physical coordinations remain relatively intact. The crying person tends to lose all perspective and to lose physical coordinations.

The *physical changes* in laughter are a "raised" face, dilated capillaries and arterioles, long inspirations, short expirations, and relatively aroused skeletal muscles. The corresponding changes in crying are a

²⁸ Gordon W. Allport, *Personality*, 1937, 222, 223 (Holt); Spinoza, *Ethics*, V, xv, vi, xxiv ff. Cf. Milton's statement, "Smiles from reason flow, To brutes denied." Cf. also PA 17 3864; Sydney Smith, as cited in Evert A. Duyckinck (ed.), *Wit and Wisdom of the Rev. Sydney Smith*, 1856, 217-235 (Redfield).

²⁹ Cf. Otto Klineberg, *Social Psychology*, 1940, 183-186 (Holt).

"fallen" face, constricted capillaries and arterioles, short inspirations, long expirations, and considerably inhibited skeletal muscles.³⁰

The *ratio of mid-division to other neural activity seems* less in laughter than in crying. In laughter, the toned-up, relatively active attitude is much like that of excitement, in which other processes supposedly outweigh mid-division activity. In crying, the downcast or submissive attitude suggests fear, with its supposedly dominant mid-division activity.³¹

The *probable neural centers* for laughter and for crying are close together, yet there is some division between the center for laughter and that for at least the weeping part of crying.¹⁹

The characteristic *affective tone* of laughter, when compared with that of crying, is bright. The individual feels happy in laughing. The characteristic affective tone of crying, on the other hand, is dark. Even though the individual "feels better" for his tears, he still feels somewhat depressed.

The *effects* of laughter and of crying, beyond relieving thwarted motivation and communicating interest, are different. Unless there are complications, crying leaves the individual "toned down," whereas laughter, if not excessive, leaves him "toned up." Associates tend to be affected in the same way. Probably for that reason, also because they feel that the person who cries much is a relatively ineffective person, people tend to avoid the one who cries and to welcome the one who laughs.

Thought

Another class of reactions is thought. That it is a class appears from daily experience, as when we think rather than get angry or merely exercise our muscles; also from neurological evidence for the special involvement of higher centers in thought. We shall discuss this important class of reactions in a later chapter.

Skeletal-muscular Reactions

Appetitive, emergency emotional, and some other reactions involve smooth or visceral muscles particularly. Several of the classes of reaction that have been cited involve striped or skeletal muscles. In

³⁰ Cf. Paul Thomas Young, *Emotions in Man and Animal*, 1943, 250-258 (Wiley).

³¹ Cf. Laurens Hickock Seelye, *Problems of Human Personality*, 1932, 70 (American Press); Frederick H. Lund, *Emotions of Men*, 1930, 157 (McGraw-Hill).

many situations, these muscles become active largely apart from the foregoing classes of reaction. Various writers have suggested that the skeletal muscles become thus active when the visceral muscles fail to satisfy the organism's needs; for example, when the organism needs to move from a less to a more favorable environment. On the other hand, as we have seen, when the skeletal muscles themselves fail to bring about an adjustment, emergency emotions, involving smooth muscles, are likely to come into play. In any event, the general use of skeletal-muscular reactions is apparent.

These reactions are noticeable in the spread of muscular activity from one part of the body to another when the first part alone is not able to meet the situation; in the trial-and-error process of meeting physical difficulties; and in everyday muscular adjustments. Some people, whenever tried, turn to some physical activity.

Mixed Reactions

The group. Though it seems useful to distinguish the several classes of reaction as we have done, and though relatively pure examples of each class seem to occur, many, if not most, reactions in daily life involve two or more classes at once. Thus there are countless mixed reactions.

Examples. *Depression* perhaps involves mental pain³² together with some emergency emotion. *Discomfort* may be similar. *Grief* and *sadness*, as already suggested, seem to involve emergency emotion together with faciorespiratory reactions, also, perhaps, mental pain and tender emotion. *Tender emotion* perhaps ought to be placed in a class of reactions by itself; or it may be a blend of reactions from the appetitive, hedonic, sensory, faciorespiratory, and skeletal-muscular classes. *Sorrow* is a more general term than grief or sadness, and perhaps involves more thought. *Bitterness* may implicate sorrow and anger.³³ *Agony* seems to include pain and intense emergency emotion. *Love* of kin, mate, home, school, workshop, country, or other object, is variously complex; as are *friendliness*, *bashfulness*, *shame*, *humility*, *elation*, *pride*, *conceit*, *regret*, *remorse*, *despondency*, *despair*, *suspicion*, *scorn*, *loathing*, *resentment*, *hate*, *malice*, *reproach*, *gratitude*, *admiration*, *awe*, *reverence*, *hope*, and

³² Harrington, op. cit., 212.

³³ Carl Jørgensen, in *Feelings and Emotions: The Wittenberg Symposium* (Carl Murchison, ed.), 1928, 312 (Clark Univ. Press). Cf. Spinoza, III xxxv-end of III; David Bidney, *Psychology and Ethics of Spinoza*, 1940, 155-189 (Yale Univ. Press).

esthetic emotion. Displeasure, unhappiness, delight, joy, and happiness seem no less complex.

Pity, sympathy, jealousy, and envy, often complex in themselves, are further complicated by awareness of another person's state of mind.

Laughter with skeletal-muscular accompaniments, such as jumping up and down or even rolling on the ground while laughing (as certain African savages did when they first beheld themselves in European clothes), exemplifies many possible complications.

Perceptual reactions would seem classifiable as mixed reactions composed of sensory and thought reactions. *Effortful reactions* seem to involve proprioceptive-sensory and thought reactions, at least.

Such reactions as *ambition, domination, patriotism, loyalty, decision*, and even *creativity*, suggest further complications.

Many of the mixed reactions can also be called sentiments or attitudes. These are names for the same reactions when recurrent or dependable.

Integration, which we have considered as a dynamic quality and as a high form of motivation, is at once the most mixed and the most highly organized of all reactions.

Hypothetical Order of Reactions

The question. Evidently the various classes of reaction, and even the different reactions within each class, tend largely to preclude one another. Thus, eating tends to preclude fighting, and fighting, eating; crying may pass over easily into laughing, and laughing, into crying, yet the two reactions do not occur simultaneously; and thinking may check eating, fighting, laughing, and crying.

Why does one reaction occur rather than another reaction? In other words, What determines the order of reactions?

The hypothesis. Fatigue and other organic conditions, and especially learning, can change the order of reactions markedly. What follows, however, is an hypothesis to explain the order apart from all such special factors.

Three of the various classes of reaction, namely, basic reflexes, appetitive reactions, and sensory reactions, in their simplest forms result from specific, native excitations. In so far as other processes do not get in the way, these reactions follow directly upon their native excitations; for example, peristalsis follows upon eating, and experience of sound, upon receiving sound waves in the ear.

The order of all the remaining classes of reaction and of the reactions within each of these classes depends, we assume, essentially upon *the respective amounts of general excitation and adjustmental readiness*.

On this assumption, we can construct a table of the order of reactions other than basic reflexes, appetitive, sensory, and many mixed reactions; a table arranged according to two coordinates, namely, general excitation as the vertical axis, and adjustmental readiness as the horizontal axis. This means that, going up the table, such excitation increases, and going from left to right, readiness increases. Thus the lower left corner of the table will represent minimal excitation and minimal readiness; the upper left, maximal excitation and minimal readiness; the lower right, minimal excitation and maximal readiness; and the upper right, maximal excitation and maximal readiness. Such a table follows.

Hypothetical Order of Some Reactions

Great	G	Terror					Fury						Joy	
	E	F	e	a	r	Agitation	Rage	A	n	g	e	r	Excitement	Delight
	N					Anxiety								
	E													
	R						Scorn		Awe		Elation		Humor	
Medium	A													
	L													
	E	Grief		Sobbing			Laughter	Admiration		Constructive thought				
	X													
	C	D	e	p	r	e	s	s	i	o	n		Curiosity	Perceptual reactions
Slight	I													
	T													
	A	Sadness		Weeping			Smiling					Skel.-musc. reactions		
	T													
	I													
	O	Sheer unpleasantness										Sheer pleasantness		
	N													

ADJUSTMENTAL READINESS

Slight

Medium

Great

Beginning at the lower left corner, when read upward this table suggests that, when readiness is minimal, slight excitation produces the "sheer" unpleasantness which seems noticeable as of itself; more excitation produces sadness; more, grief; and maximal excitation, fear, indeed terror. In the second column, where readiness is a bit greater, increasing amounts of excitation produce different degrees of crying

(weeping and sobbing), also anxiety and more-intense fear. Depression overlaps these two columns at sadness, grief, weeping, and sobbing. At the next higher readiness, great excitation produces agitation. At the remaining grades of readiness, the several amounts of excitation produce the reactions listed.

When read from left to right, the table suggests for each quantity of excitation an order of reactions according to increasing readiness. For example, with slight excitation, sheer unpleasantness occurs when the individual is least ready, and sheer pleasantness when he is (subjectively, at least) most ready, to adjust. At medium excitation, sobbing gives way to laughter as readiness increases; and at the highest level of excitation, fear occurs when the individual is least, anger when he is more, and joy when he is most, ready to adjust.

While there are several particularly speculative points in this table, many observations point toward something like it. Thus, pallor and slowing or arrest of vital functions occur in sadness, depression, grief, and fear, including terror, all of which are mentioned in the first column. The catching of breath in sobbing suggests the arrested breathing of fear, which is nearby on the table. Maladjusted children seem more prone to cry (weep or sob) than to laugh; as is shown in the arrangements of these reactions along the horizontal axis. Also as reflected in the table, crying (weeping, sobbing) seems closer to fear than to anger. Laughter is farther from fear, but passes easily into anger through scorn. Sadness expresses less excitation than grief, weeping than sobbing, and smiling than laughter. Smiling expresses rather high adjustmental readiness, without excessive excitation. Thus Holmes speaks of the smile with "a quiet assertion in it" worn by "the Champion of the Heavy Weights, commonly the best natured, but not the most diffident of men."³⁴

With increased readiness and some further excitation, as recorded in the table, the individual indulging in "sheer pleasantness" may progress to skeletal-muscular reactions and to perceptual reactions. Still further excitation calls forth constructive thought. Such thought, as its position reflects, seems closer to laughter than to crying. With increased excitation, the thought may give way to elation, humor, or even excitement, delight, or joy.

Of course the table is not very useful for predicting reactions in particular cases. The table is, as we have said, hypothetical. Moreover, the

³⁴ *The Autocrat of the Breakfast Table*, Ch. III.

terms used in it are not precisely delimited; it does not list the basic reflexes, appetitive reactions, sensory reactions, and countless mixed reactions that occur in everyone; and, in considering only general excitation and adjustmental readiness, it does not take account of the various complications which often produce unexpected reactions.

"A young man of strongly nervous temperament, on hearing by a telegram that a fortune had been bequeathed him, first became pale, then exhilarated, and soon in the highest spirits, but flushed and very restless. He then took a walk with a friend for the sake of tranquilizing himself, but returned staggering in his gait, uproariously laughing, yet irritable in temper, incessantly talking and singing loudly in the public streets. It was positively ascertained that he had not touched any spirituous liquor, though everyone thought that he was intoxicated. Vomiting after a time came on, and the half-digested contents of his stomach were examined, but no odor of alcohol could be detected. He then slept heavily, and on awaking was well, except that he suffered from headache, nausea, and prostration."³⁵

Still, until the table is revised by better observations, it may suggest some dynamic relations between various reactions.³⁶

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³⁵ Adapted from Charles Darwin, *The Expression of the Emotions in Man and Animals*, 1896, 76 (Appleton).

³⁶ Cf. also PA 10 5658.

8 | Connector Processes

It becomes . . . no inconsiderable part of science barely to know the different operations of the mind, to separate them from each other, to class them under their proper heads . . .

David Hume

. . . The product, even though it contain nothing more in itself than the sum of its factors, . . . is different not only from each one of these factors but also from a mere juxtaposition of them.

Friedrich Eduard Beneke

When one part of an organism influences another part, or there is a path or other way for such influence, we say there is a connection between those parts. Apparently all mental life depends upon such connections, and especially upon neural connections, both native and acquired. Moreover, all but the simplest connections involve one or more of the processes now to be considered.

Diffusion

Examples. When a drop of acid is put on the back of a frog, the frog works at the acid, first with one foot, then with another, then with more than one foot, until finally the whole frog is active. Here the excitation from the acid has diffused to many muscles.

A person who is kept too long sitting still and listening, or who is presented with a "difficult" topic from which he cannot escape, hitches in his chair, moves his feet, clasps and unclasps his hands, looks about, and perhaps yawns.

The native yawn-and-stretch has been interpreted as a diffuse response to a tonic contraction of the diaphragm. Most sufferers from residual spastic hemiplegia (a form of paralysis), when yawning, extend the arm, hand, and fingers, or even fan the fingers of a paralyzed arm or hand. Coughing may arouse a like response.¹

Apparently in any subject, certain cerebral overstimulations, medications, and ablations produce simultaneous contractions of all muscles, agonists and antagonists together.²

Diffusion occurs not only within a single class of reactions, such as skeletal-muscular activities, but also from class to class. Thus, great hunger may arouse skeletal-muscular, faciorespiratory, and still other reactions; strong auditory stimulation may arouse skeletal-muscular, faciorespiratory, and emergency-emotional reactions;³ and diffusion may occur likewise from emergency-emotional reactions into at least the eliminative part of the alimentative reactions, into some sexual reactions, and into the parturitive reflexes.

"Dr. Alvarez, the authority on emotional indigestion, states that the earliest reference to the purging effects of fear and anxiety are found in an eyewitness account of a battle between two young kings of Persia. The historical account reads: 'The vehemence of my battle line like a bow overwhelmed them. To save their lives they trampled over the bodies of their soldiers and fled. Like young captured birds they lost courage. With their urine they defiled their chariots and let fall their excrements.' The World War originated its full share of anecdotes centering around the cathartic action of strong emotion. Love [we should say anxiety about it], as well as fear, may release the emptying reflexes. Alvarez recounts that a young woman consulted him about an infirmity which threatened to interfere with her ever finding a mate. He writes: 'In her the slightest sign of affection on the part of a young man so increased the tone and activity of the digestive tract that she was promptly summoned by a call of nature so imperative that it could not be denied; she had to flee precipitately just when she would most like to have remained.' Hamilton, in his classic study of marriage adjustment, reports that individuals subjected to rigorous questioning concerning their marital behavior repeatedly interrupted the interviews in

¹ F. Walshe, quoted in Gladys Gage Rogers and Leah C. Thomas, *New Pathways for Children with Cerebral Palsy*, 1935, 83-84 (Macmillan).

² Hans Strauss, Carney Landis, and William A. Hunt, *J. Nerv. Ment. Dis.*, 1939, 90:446-448.

³ An explanation for such arousal of the autonomic system in terms of chronaxie has been suggested by Lapique and others. Cf. H. N. Gardiner, Ruth Clark Metcalf, and John G. Beebe-Center, *Feeling and Emotion*, 1937, 381 (American Book).

order to go to the restroom. This behavior is even more common among the less inhibited lower animals. Koehler, in his book on the mentality of apes, tells how the sight of a teddy bear so frightened his chimpanzees that they were immediately and thoroughly purged.

"Further evidence that defecation and urination may be evoked by exciting conditions is obtained from Cannon's studies on the physiology of emotion. He characterized the sacral autonomic as a group of mechanisms for emptying the colon, rectum, and bladder. The normal stimulus for the evacuation of these reservoirs is distension by accumulation of contents. But during intense emotional stimulation impulses may overflow from the sympathetic system into the sacral segment and discharge the contents of the colon and bladder."⁴

In Chapter 7 we noted intumescent as well as other reactions in male infants who were startled or whose sucking had been thwarted, also sexual excitement in school children who had become worried about their work. Though anxiety is also known to prevent sex activity under many circumstances, after erection has occurred some anxiety may precipitate orgasm in the male.⁵ Perhaps the anxiety also disturbs the higher inhibitions.

"Discussing . . . psychogenic abortion, A. Mayer calls attention to the frequency of abortion following emotional shock. During the bombardment of Strassburg in 1870 a great number of abortions and miscarriages were reported as a result of fright. Baudelocque reports that 92 cases of abortion came to him for treatment almost simultaneously following an explosion of a powder tower. Mayer notes that at the time of the earth-quake in 1911 practitioners in general . . . were impressed by the frequency of abortion In view of the close connection between the musculature of the uterus and the intestines we are justified in relating to the uterus observations made on the bladder and intestines, especially since according to clinical experience and pharmacological experiment, the uterine musculature is especially irritable during pregnancy. . . . Special reference should be made to . . . cases of psychogenic abortion described by . . . Eisler"⁶

Apparently any form of diffusion can become habitual. This fact explains, in part at least, why some men, when nervous, always light a cigarette; others resort to some little trick of hands, head, facial

⁴ Adapted from Calvin S. Hall, *Am. Scientist* (Sigma Xi Quar.), 1938, 26:19-20. Cf. also H. Flanders Dunbar, *Emotions and Bodily Changes*, 1947, 315 ff. (Columbia Univ. Press).

⁵ Cf. M. J. Exner, *The Sexual Side of Marriage*, 1932, 117-118 (Norton); Edwin W. Hirsch, *The Power to Love: A Psychic and Physiologic Study of Regeneration*, 1934, 159-160 (Knopf); Béla Mittelman, *Ann. N. Y. Acad. Sci.*, 1947, 47:631-632.

⁶ Dunbar, *op. cit.*, 345-346, where further references are available.

muscles, speech, affect, or to whatever reaction has come to serve for diffusion.

Mechanism and definition. In all of these examples, it seems that diffusion occurs because excitation overweighs adjustmental readiness, hence spreads through various paths toward numerous effectors which may somehow relieve the excitation.

Diffusion is spread of excitation into various paths.

Initial diffusion. Whether, as variously claimed, the first responses of the embryo are general and give way to local responses only through development,⁷ or whether the responses of the embryo are only diffuse in proportion to the strength of the stimulus used,⁸ it seems clear that the young organism, or any organism that finds itself in a new situation, is especially liable to diffusion. This is "the beginner's error."

The young child who tries to play a difficult phrase on the piano responds with his hands, arms, trunk, head, and legs. The beginner in golf, or the unaccustomed public speaker, likewise tenses muscles unnecessarily.

Developed specificity of response. With maturation or learning or both, diffusion decreases; until the expert meets his situation easily, with maximal relaxation and specific, adjustmental response.⁹

Recurrence of diffusion when excitation overweighs readiness. Such specific response is lost in diffusion whenever, we assume, excitation again overweighs readiness. If excitation increases through domestic worry, pain from a toothache, heckling from the audience, or concern for the outcome; or if adjustmental readiness decreases through emotion, fatigue, or conflicting preoccupation; the individual reacts tensely, erratically, or wildly, as diffusion recurs. Naturally most subject to such diffusion are the least adjustmentally ready individuals.¹⁰

"Neurodynamical age." Luria experimented upon various subjects, one by one, as follows: He placed the subject's hands upon recording

⁷ Minkowski and others, cited by G. E. Coghill, *Science*, 1933, 78:131-138.

⁸ Leonard Carmichael and M. F. Smith, *J. Genet. Psychol.*, 1939, 54:434.

⁹ Cf. Graydon LaVerne Freeman, *J. Gen. Psychol.*, 1931, 5:479-494; especially 490, the graph reproduced in Gardner Murphy, *General Psychology*, 1933, 257 (Harper).

¹⁰ Intense sounds upset undernourished more than well-nourished rats. (Robert A. Patton and Harry W. Karn, *Psychol. Bull.*, 1941, 38:578-579; Frank W. Finger, *Am. J. Psychol.*, 1942, 55:76.)

devices, then asked him to listen to a list of words and, immediately upon hearing each word, to tell what the word brought to mind and at the same time to press down with one hand. Luria found that when he gave the subject a word that touched off a conflict, usually the subject hesitated, stuttered, or repeated the stimulus word, or combined these "complex indicators," and often showed tremors or more marked movements of one or both hands. Thus Luria demonstrated a diffusion of the excitation into the motor system.¹¹

He found such diffusion most often in subjects who were either very young, untrained, feeble-minded, fatigued, preoccupied with something else, aphasic, or psychoneurotic. Some subjects showed diffusion when asked merely to press rhythmically. Others, who could press rhythmically without diffusion, showed it when asked to press in response to the signal. Still others, who could cross both these hurdles, showed diffusion when asked to delay the response. Some showed it only when they came to speak and press simultaneously; and some, only upon choosing between responses. Concluding that liability to diffusion indicates level of neuromuscular organization, Luria proposed to state that level as the individual's "neurodynamical age"; a conception admittedly crude and unquantified, but which he hoped would become as useful as the "morphological age" and "mental age" already in vogue.¹² Whether or not it can become so useful, the conception of "neurodynamical age" suggests how diffusion tends to decrease as readiness increases and points to individual differences in liability to diffusion.

Summation

In many situations, not spread of excitation but combination of excitations is what interests us. Such combination is summation. It may be either temporal or spatial.

Temporal summation. When a subliminal stimulus—one too weak to arouse a noticeable reaction—is repeated at sufficiently close intervals, the successive excitations may combine to arouse a reaction. Similarly, when a weak though supraliminal stimulus is repeated rapidly enough, the combination of excitations may enhance the reaction or in

¹¹ A. R. Luria, *The Nature of Human Conflicts, or Emotion, Conflict, and Will: An Objective Study of Disorganization and Control of Human Behavior* (Gantt, tr.), 1932, 32 ff. (Liveright). With regard to method, cf. PA 10 2415, 11 211, 555.

¹² Op. cit., 331 ff. Cf. PA 16 3973, 18 1362.

some sense departments even change the quality of the reaction, as when repeated light touches become a tickle or continued dropping of water on a spot on the skin produces pain. A light presented briefly seems brighter if presented longer. In more complex types of motivation, continuous small excesses of general excitation over adjustmental readiness produce, for example, faciorespiratory reactions or even emergency emotion; and rapidly repeated slight suggestions may induce whatever likely reaction is suggested.

Temporal summation is combination of successive excitations.

Spatial summation. Excitations presented simultaneously may combine likewise to arouse or increase a reaction. Thus, a small area that stimulates the eye seems less bright than a larger area of the same physical quality.

Spatial summation is combination of simultaneous excitations. Usually the term "spatial summation" is applied to combination of simultaneous excitations within one sense. Sometimes it is applied to combination of simultaneous excitations from different senses or other sources of excitation; though for these phenomena the term "convergence" is useful.

Convergence

A frog that does not jump when stimulated only by a given sound or a given touch does jump when stimulated by both together. Here, instead of each excitation arousing its own most likely reaction (say, crouching from the sound, and wriggling from the touch), the two excitations converge in a common reaction. In human beings, simultaneous excitations of different paths often come together into a "final common path" leading to a single, though perhaps complex, reaction. Examples were suggested by Hume's phrase, "the parallel direction of the desires," in Chapter 6. Further examples will appear in the section on Facilitation, as facilitation always involves either summation or convergence.

Convergence is joining of simultaneous excitations in a common path. The path may be either a path already established or a new path.

Advergence

Often a new noise touches off a reaction hitherto linked with a different noise; a tap on the elbow touches off a reaction linked with a tap on the shoulder; and so on for other forms of excitation. This is not

combination of actual excitations as in summation and convergence, but the turning of an actual excitation into the path of a previous and different excitation. For this process, various writers have used the terms "irradiation" and "generalization." Those terms, however, commonly mean quite other things. Since "*convergence*" is currently taken to mean "*together turning*" of simultaneous excitations into some one path, it seems clearest to introduce a new term, "*advergence*," to mean "*to turning*" of subsequent, different excitation into an already established path.

Advergence is turning of one excitation into the path of a previous different excitation.

Some possible explanation of how this process occurs will be suggested in the chapter on Learning. The importance of the process will appear particularly in that chapter and in the subsequent discussions of perception, thought, and action.

Facilitation

Barring complications, a faint sound immediately following another faint sound facilitates the reaction to the first sound. The sight of a mouse facilitates the cat's jump that was already motivated by the sound and smell of the mouse. The person running from a bear because he sees it coming toward him runs faster when it growls, and still faster (unless diffusion slows him) when he feels its breath. Clenching the fists facilitates the knee jerk. Within certain limits, tension of allied muscles facilitates thought and muscular work.¹³ A subject can do more work on an ergograph when even irrelevant stimuli are presented than when working undisturbed. The light of a bright day makes many persons feel stronger and more clear-headed than on dark days; as is evident in schools, factories, and hospitals. At night, high illumination without glare and distracting brilliancies is generally motivating,¹⁴ for the time being at least.

Pleasant stimuli facilitate sexual reactions. Pleasant stimuli, including sexual stimuli, also facilitate alimentative reactions, within limits.¹⁵

¹³ Graydon LaVerne Freeman, *Psychol. Rev.*, 1931, 38:428-447, *Psychol. Bull.*, 1936, 33:813.

¹⁴ C. E. Ferree and G. Rand, cited in Bruce V. Moore and George W. Hartmann, *Readings in Industrial Psychology*, 1931, 348-349 (Appleton). Increased illumination also arouses the sex glands of various animals; though this may be through body chemistry (PA 14 1310).

¹⁵ Frederick H. Lund, *Emotions: Their Psychological, Physiological, and Educative Implications*, 1939, 152 (Ronald).

"Hatred which is completely vanquished by love passes into love; and love is thereupon greater than if hatred had not preceded it." ("Though this be so, no one will endeavor to hate anything for the sake of enjoying this greater pleasure.")¹⁶ Certain primitives relax obscenity taboos to facilitate important communal work.¹⁷ A toothache facilitates a previously aroused impulse to go to the dentist. Seeing friends eat facilitates one's own tendency to eat. Deaf lip-readers who have also learned to recognize the various "sounds" through feeling the vibrations on a telephonic diaphragm can read lips considerably better when feeling the accompanying vibrations.¹⁸

Different pitches and intensities of sounds can be discriminated better in the light than in the dark, according to present data.¹⁹ "Otologists have long noted that the auditory perception of hard-of-hearing patients tends to be better on bright days and poorer on raw and cloudy days . . . Strike a piano key with the pedal depressed and while the tone lasts, silently switch an electric light bulb on and off; one hears in the same rhythm the swelling and fading of the tonal intensity! If the eyes are closed or covered, the effect fails to occur." Similarly, visual acuity increases when auditory, or olfactory, or cutaneous stimuli are applied; and the acuity of one eye increases when at the same time the other retina is illuminated. One investigator thinks that the oculomotor impulses to which the visual stimulus-pattern gives rise react upon the sensory pattern, so as to improve localization, for example. Thus it seems that, as James said (after Urbantschitsch), "all our sense organs influence each other's sensations."²⁰

The Müller-Lyer illusion (an arrow with a head on each end seems

¹⁶ Spinoza, *Ethics*, III, xlv.

¹⁷ PA 4 2714.

¹⁸ Robert H. Gault, *Psychol. Bull.*, 1936, 33:775.

¹⁹ George W. Hartmann, *J. Exp. Psychol.*, 1934, 17:813-822.

²⁰ George W. Hartmann, *Gestalt Psychology*, 1935, 145 (Ronald), *J. Exp. Psychol.*, 1933, 16:383-407; D. M. Purdy, *Psychol. Rev.*, 1935, 42:528-536; B. M. Teplov, *J. Gen. Psychol.*, 1936, 15:3-11; William James, *Principles of Psychology*, 1890, 2:29. Cf., however, T. A. Ryan, *Psychol. Bull.*, 1940, 37:663 ff.

Duval found hysterical amblyopia cases in which "each eye, reckoned alone, is almost amaurotic, the subject scarcely distinguishing day from night, whilst, when the eyes are both open, he might see well enough to walk. In others, the subject, achromatopic in each eye studied separately, is capable of distinguishing almost all colors, or even all colors, in binocular vision. Parinaud has further indicated that in hysterical persons the visual field of an eye is much more extended when, during examination, the other eye is held open than when it is shut." (Adapted from Charles Féré, *The Pathology of the Emotions: Physiological and Clinical Studies* (Park, tr.), 1899, 25, University Press, London.)

Féré remarked that an interjection often helps us to understand a faintly heard phrase, whether the interjection be by the hearer or by the speaker (op. cit., 28).

shorter or longer according to how the heads are turned) occurs even when the heads of the arrows are so faint that the subject cannot consciously see them.²¹ This suggests that much facilitation is subconscious.

In each of these examples excitations combine, so illustrating either summation or convergence. Moreover, in each example, one excitation augments another excitation's effect, so illustrating facilitation. *Facilitation is one excitation's increase of another excitation's effect.*

Association

Association is the learning or revival of associations, that is, of relatively lasting connections acquired through learning. Association may occur variously through diffusion, summation, convergence, advergence, and facilitation, together with other factors to be touched upon in the chapter on Learning. Here we need only remark association as an important connector process.

Inhibition: Its Nature and Types

The nature of inhibition. Many an excitation, instead of increasing or arousing another excitation's effect, somehow checks it. Thus, a sneeze can be checked usually by pressing the base of the nose; often by some surprising experience, like a noise or a piece of news; and, in people who have learned the trick, by the thought of breathing normally. Countless other reactions are checked similarly. Such checking is inhibition.

Every case of convergence, of advergence, and of facilitation, respectively, in which any excitation is diverted from its own characteristic effect involves inhibition of that effect; which inhibition, we assume, comes from a rival simultaneous or previous excitation.

Thus, if excitation *E 1*'s characteristic effect is *R 1*, *E 2*'s is *R 2*, and so on: In convergence, *E 1* and *E 2* join in *R 1* as *E 1* inhibits *R 2*, or in *R 2* as *E 2* inhibits *R 1*, or in *R 3* as *E 1* inhibits *R 2* and *E 2* inhibits *R 1*. In advergence, *E 4* turns into the path left by *E 5* as *E 5*, through the path which it left, inhibits *R 4*. In facilitation, *E 6* facilitates *E 7*'s *R 7* as *E 7* inhibits *R 6*.

That every inhibition does come from some rival excitation is suggested by the way many an inhibition is learned. Thus, when a monkey that has learned to take food at a signal is learning to inhibit that reaction, Wendt observed that the inhibition "first occurs when the animal

²¹ Breslow, cited by M. N. Chappell and F. H. Pike, *The Nature and Control of Psychological Illness* (mimeographed), 1935, 168.

is responding to other stimuli in the experimental situation," when "competing reaction systems gain dominance over the food-taking reaction system." Inhibition is thus "only the negative aspect of a positive picture of competing reactions";²² reactions which involve essentially, we assume, competing excitations.

The detailed mechanism, the inner chemistry, physics, and psychology of inhibition, no one knows. There are various theories. It seems clear, however, that inhibition is an orderly, deterministic process and likely that it somehow derives always from a rival simultaneous or previous excitation. Since to assume as much seems to make the facts relatively intelligible, let us say that *inhibition is one excitation's checking of another excitation's characteristic effect*.

Types of inhibition. The actual cases of inhibition probably fall along a scale rather than into discrete classes. Nevertheless, toward comprehending the facts of inhibition and explaining much in later chapters, we shall classify cases of inhibition with reference to two extreme types; we shall call these types conflictful inhibition and central inhibition; and we shall assume that the types differ essentially as follows:

Conflictful inhibition involves continued resistance by the pattern checked: the inhibiting excitation's activated *muscles* meet some continued opposition from the checked pattern's *muscles*; the checking and the checked patterns do considerable *physical work against each other*.²³ Hence conflictful inhibition wastes energy and really is only partially effective inhibition.

The central type, on the other hand, involves nonresistance, and perhaps some actual contribution of premuscular excitation, by the pattern checked; all conflict between the two sets of muscles is *completely resolved through the neural centers*. Thus central inhibition saves energy and is highly effective inhibition.

These differences will be developed in the next sections.

Conflictful Inhibition

Definition and forms. *Conflictful inhibition is one excitation's resisted checking of another excitation's characteristic effect.*

²² Adapted from G. R. Wendt, *Psychol. Bull.*, 1934, 31:730-731. Cf. also Wendt, *Psychol. Rev.*, 1936, 43:258-281; also Irving King, *The Psychology of Child Development*, 1903, 110-115 (Univ. of Chicago Press).

²³ Cf. Margaret Floy Washburn, *Movement and Mental Imagery: Outlines of a Motor Theory of the Complexer Mental Processes*, 1916 (Houghton Mifflin).

Such resisted checking appears in the several forms, *mutual blocking, decrement, oscillation, and abnormal compromises and confusions.*

Mutual blocking. The ass placed midway between two bales of hay, according to legend, starved to death. A small sea animal, carmarina, if stimulated at a point on its discoid subumbrella, will normally move its manubrium, which hangs from the middle of the subumbrella, to the point stimulated; but if two opposite points on the subumbrella are stimulated, the manubrium is halted between them.²⁴ A dog is sometimes arrested, for a moment, between two bits of game, or between his natural impulse to chase a squirrel and his acquired impulse to walk beside his master, or between the orders of his two masters. Sometimes we, when walking, are halted by a parting of the ways; or when reading, seem to stop thinking when someone speaks to us. According to recent experiments, subjects do not add, subtract, name colors, substitute items, or do any such task continuously, but stop responding at fairly rhythmical intervals, the frequency and length of which relate to the subject's make-up, practice, fatigue, and particularly to opposition between elements in the task.²⁵ The immobility of fright would seem to be either general deadlock between responses or the general relaxation of fainting which may follow upon such deadlock. Perhaps the waxy or rigid immobility called catalepsy is a general deadlock.

Mutual blocking is deadlock between responses.

Decrement. When an animal smells both the bait in the trap and the traces of the trapper, he may take the bait reluctantly. Here the animal's bait-taking response is only partly blocked by his trapper-avoiding response. Animals and men often become "weak from fear," perhaps largely through mutual blocking between many but not all of the various responses aroused. Many a person both "greatly wishes to help" and considerably wishes not to help, so helps halfheartedly. Many a one wants to be wholly agreeable, patriotic, religious, ethical, yet his performance suffers decrement from his own simultaneously opposed reactions.

Decrement is decrease of one response through mutual blocking between part of it and part or all of the opposed response.

²⁴ Charles S. Sherrington, *The Integrative Action of the Nervous System*, 1906, 117-118 (Yale Univ. Press).

²⁵ Arthur Gilbert Bills, *Am. J. Psychol.*, 1931, 43:230-245, *J. Exp. Psychol.*, 1935, 18:172-185.

Oscillation. Miller trained white rats to find food at the end of an alley, then trained them to avoid that end because of electric shocks there. Subsequently, when hungry, the rats oscillated toward and away from that end of the alley. Brown showed further that, as both conflicting drives became stronger, the rats' oscillations became greater; and as hunger was decreased or shock increased, the mid-point of the oscillations moved farther from the food-shock area.²⁶ An example of oscillation at a reflex level is trembling. At higher levels, a person may oscillate between desire and guilt, between love and hate, between belief and disbelief, or between doing this and doing that.

In such examples, the opposed responses do not come to equilibrium either in complete mutual blocking or in decrement, but tug back and forth; though always with mutual blockings between parts of the patterns directly concerned, hence with some decrement.

It is true that not all oscillation *appears* to involve decrement; often the individual who oscillates between desire and guilt, or love and hate, or any other pair of opposites, seems to respond more intensely than individuals who are not thus torn. In such cases, however, it seems likely that extra excitation increases the responses, but not so much as though there were no conflictful waste; the increased responses suffer decrement in so far as they pull against each other.

Oscillation is tense fluctuation across the point of mutual blocking.

Abnormal compromises and confusions. Of the forms so far considered, conflictful inhibition allows, in mutual blocking, no response; in decrement, whatever partial response remains over and above mutual blocking; and in oscillation, whatever partial responses take their turns over and above mutual blocking. The remaining forms range from patterned yet crude resultants, which we shall call abnormal compromises, to unpatterned mixtures, confusions. *Abnormal compromises and confusions are crude resultants and mixtures of conflicting responses.*

Such compromises and confusions could be taken to include mutual blocking, decrement and oscillation; but we are concerned here with further forms.

An unpracticed ballplayer, uncertain whether to throw the ball to first or to second base, throws it between them.

A small child, when told to take his fingers out of his mouth, returns them to his lips or face.

²⁶ Cf. Neal E. Miller, in J. McV. Hunt (ed.), *Personality and the Behavior Disorders*, 1944, 1:435-437 (Ronald).

The administration of Theodore Roosevelt called forth various estimates of the man. The comment, "Teddy is unquestionably our head-foremost citizen," was one compromise between conflicting estimates.

At a supper, those at the table were passing the butter from right to left, while the maid was proceeding with the platter of meat from left to right. Just as one man was taking some of the meat, his neighbor on the right, not noticing his occupation, asked: "Will you have some butter, Dr. de H.?" "Yes, thank you," replied the beset one, putting the meat on his butter plate.

In a newspaper office, the boy told the editor: "A man called while you were out, sir. He said he wanted to thrash you." "And what did you say to him?" "I said I was sorry you were out, sir."

Walter Winchell mentioned one woman's "compliment": "My dear, what a perfectly stunning gown. Didn't they have it in your size?"²⁷

Smith and Guthrie noticed that "when a puppy is scolded, his behavior is a compromise between affection and fear and is somewhat suggestive of the politeness of human beings in the presence of strangers.

"If a child's mischief annoys us, we respond to him both as a child to be treated kindly and as a nuisance to be abated. The resultant response is remonstrance with sad good humor."²⁸

A young woman went to a New York police station and said she would like directions to Brooklyn Bridge so she could commit suicide from it.

Various confusions representing conflictful inhibition occur in daily life, in the laboratory, and in pathology. Of course, many confusions are organic.²⁹

Mutual blocking, decrement, oscillation, and abnormal compromises and confusions represent waste of energy, hence lack of integration.

Integrated reactions distinguished. Not every competition between patterns causes mutual blocking, decrement, oscillation, or abnormal compromise or confusion. In normal action, different movements function by turns, or one gains a free way over the rest, without noticeable

²⁷ Reader's Digest, September, 1938, 111.

²⁸ Adapted from Stevenson Smith and Edwin R. Guthrie, *General Psychology*, 1923, 43-47 (Appleton); used by permission of Appleton-Century-Crofts, Inc. For some experimentally induced compromises and confusions, cf. Erickson, *Psychoan. Quar.*, 1939, 8:339-345 (Tomkins (ed.)), *Contemporary Psychopathology*, 1943, 517-522, Harvard Univ. Press).

²⁹ A. A. Roback, *Psychol. Monog.*, 1918, 25:No. 5, passim; Georg Schwarz, *Psychol. Forsch.*, 1927, 9:86-162; Elsa M. Siipola, *J. Exp. Psychol.*, 1940, 26:54; Helge Lundholm, *J. Abn. Psychol.*, 1929, 24:269-286; Tom A. Williams, *Proc. Am. Medico-psychol. Assn.*, 1916, 417-438.

hindrance. In normal deliberation, alternatives come up, and one is chosen, or chosen parts are combined, in a new, smooth-running organization. Such integrated reactions reflect central inhibition.

Central Inhibition

Characteristics and definition. *Conflictful* inhibition, we have assumed, is one excitation's *resisted checking* of another excitation's characteristic effect. *Central* inhibition, on the other hand, involves nonresistance by the checked reaction, and perhaps contribution of some of its excitation, to the checking excitation's reaction. True, in the finest analysis, even central inhibition may mean that the checking excitation *initially* arouses, then subdues and perhaps draws upon, the checked reaction;³⁰ nevertheless, it is the promptly achieved state, in which one excitation has disposed of the checked effect, that we take to reflect central inhibition. *Central inhibition is one excitation's negation of another excitation's characteristic effect.*

Alternative reaction. Since central inhibition brings about just one of two alternative reactions, for a different emphasis we shall call the whole process "alternative reaction." *Alternative reaction is one reaction's gaining the right of way through central inhibition.*

Forms of alternative reaction. The simplest form of alternative reaction is what Sherrington called *reciprocal innervation*. This is the normal functioning-by-turns of opposed muscles, typically in a limb. When a limb is at rest, a certain tonus, a continuous slight tension, seems to hold the several muscles ready to react when needed. Under special circumstances, all the muscles are needed, or are aroused through diffusion, so that the whole limb is tense. Normally, however, with contraction of the flexor or of the extensor muscles goes relaxation of the opposed muscles—relaxation even from their resting tonus. This clear type of alternative reaction is reciprocal innervation.

Reciprocal innervation is the prototype of *higher forms* of alternative reaction. These higher forms occur between systems within the great classes of reaction previously presented—basic reflexes, appetitive reactions, hedonic reactions, sensory reactions, emergency emotions, faciorespiratory reactions, thought, skeletal-muscular reactions—also

³⁰ Cf. Raymond Dodge, *Psychol. Rev.*, 1926, 33:6-7, 174, 186-187, 9-10.

between these classes, and between mixed reactions. Many such substitutions are learned.³¹

Substitution through alternative reaction. Given the various patterns and classes of reaction which have been suggested, it seems that, *within limits, one pattern, class, or combination of classes of reaction can substitute for another.*

A twelve-month-old baby whose right hand is caught and restrained from playing the piano plays cheerfully with the left hand instead, while the captive right lies relaxed. A toddler, playing happily but silently on the floor with toys, when put into a snug-fitting sleeping bag on the porch becomes a happy vocalizer. Chewing is a substitute for some nervous activities.³² Smoking, drinking, crocheting, music, and games are substitutes likewise. Thwarted activity of various sorts may give place to emergency emotion. Either thwarted activity or emergency emotion may give place to sex behavior,³³ and sex behavior may yield to emergency emotion, for a time at least. Emergency emotion may occur instead of alimentative reactions, and alimentative reactions may displace emergency emotion, within limits.³⁴ Discomfort from bladder pressure is relieved, for a time, by random movements of the legs. Sundry pains are inhibited by faciorespiratory reactions, by touch under certain conditions,³⁵ by skeletal-muscular reactions (witness the dental patient's preoccupation with his tensed muscles), and by various other modes of reaction.

"Dr. de Watteville says: 'One of the most striking properties of the nervous system is that by which the activity of one portion may be arrested or prevented—"inhibited"—by the activity of another. When we attend closely to a sensory impression or to a train of thought, the excitability of every part of the brain, except that actually engaged in the act, is diminished by an inhibitory action of the working portion.'

³¹ Substitution between various systems of reaction within the organism was suggested, with qualification, on a projicient-autonomic scheme by J. W. Bridges, *J. Abn. Psychol.*, 1925, 19:333-340; and on a postural-autonomic-symbolic scheme by H. L. Hollingworth, *Abnormal Psychology*, 1930, 398 (Ronald). Cf. also Luria, *op. cit.*, 191 note, 325 note.

³² H. L. Hollingworth, *PA* 14 1299, 1300.

³³ O. L. Tinklepaugh, *PA* 8 2541; also various authors' observations on masturbation in children.

³⁴ Taylor, *Readings*, 172-183; Dunbar, *op. cit.*, 269 ff.; Calvin S. Hall, *Sigma Xi Quar.*, 1938, 26:20, 22, 27; Mary Cover Jones, in *A Handbook of Child Psychology* (Carl Murchison, ed.), 1933, 282-283 (Clark Univ. Press).

³⁵ Henry Head and W. H. R. Rivers, *Brain*, 1908, 31:323-450.

Sir Lauder Brunton points out how Tennyson, in his poem *Home They Brought Her Warrior Dead*, recognized the reciprocity between emotion and motor impulses when he described the relief which followed on the sufferer bursting into tears and embracing her child.³⁶ Similarly, the angry person who feels helpless in his rage may throw himself into wholehearted weeping. Anger may also be "worked off" on a woodpile or a punching bag, or through hysterical laughter, so long as the original motivation to anger does not recur; or the subject may relieve the anger by "thinking hard" about possible adjustment of the angry situation. Excessive excitement may be taken care of by jumping up and down, by laughter, by crying, or by other reactions.³⁷

"Some months ago I received an urgent message to visit a gentleman, a short distance from town; when I arrived at his house he was sitting in his parlor, and not looking ill. I expressed some little vexation at being summoned so hastily. He said he was now much better, and commenced explaining to me the reason of the summons, when he began to cry; presently the cry reached the stage of sobbing; this became louder and louder, and more violent, until it changed into a laugh, which he was totally unable to suppress, and I became a witness of the most marked attack of hysterics that I had ever seen in either sex. He presently fell back in the chair, quite exhausted. He was a man thirty years of age, with a large black beard, and had as manly an appearance as you would wish to see. His wife then told me that he had been speculating, that he was a ruined man, and would have to leave his house and family. He had returned home that evening shortly before I was sent for, and the thought of the prospect before him was more than he could bear, and thus the cause of the attack. Whilst she was relating this he grew calm, and then commenced to talk to me, saying how foolish he was, but could not refrain from referring to the circumstance of his misfortune. He had not proceeded far when he was again overcome: another laugh commenced, and then he broke out into such a loud and involuntary fit of laughter, that the noise could be heard throughout the whole house. It only ended with his utter exhaustion. I saw him a few days afterwards, and he was pretty well. This gentleman had simply an hysterical attack from violent emotion."³⁸

³⁶ Adapted from C. Lloyd Tuckey, *Treatment by Hypnotism and Suggestion, or Psychotherapeutics*, 1907, 27 (Putnam). Cf. also Milton Harrington, *A Biological Approach to the Problem of Abnormal Behavior*, 1938, 181-182 (Science Press); G. L. Freeman, *Psychol. Bull.*, 1940, 37:464.

³⁷ In rats, increased bodily activity is antagonistic to sound-produced seizures (Magda B. Arnold, *J. Exp. Psychol.*, 1944, 34:261). Cf. also G. W. Crile, *The Origin and Nature of the Emotions*, 1915, 64-74 (Saunders), *Man: An Adaptive Mechanism*, 1916, 220 ff. (Macmillan).

³⁸ Daniel Hack Tuke, *Illustrations*, 1873, 187-188.

As Bridges said, "Whenever a situation demands overt response such as escape, fighting, or mating, and the required response is checked or inhibited, the visceral and glandular response may be intensified and prolonged. This places an undue and somewhat unnatural strain upon the autonomic apparatus. Such a strain if long continued may result in marked physical disturbances, gastrointestinal and others. These disturbances are at first of the so-called functional variety, such as nervous indigestion; but it is well known that these functional disorders may ultimately terminate in organic changes, such as gastritis and gastric or intestinal ulcer. Another result of this tension in the autonomic system is a fatigue and weakening of the whole apparatus. The writer feels convinced that various forms of visceroptosis [falling of viscera] have sometimes a so-called psychological origin. Such a consequence is of course more likely to occur in the case of those persons who by original nature or training have a pronounced tendency to inhibit overt expression in an instinct-emotion producing situation. He who expresses little may really feel most keenly, while he who expresses himself readily may feel less keenly and escape some of the unfortunate consequences of too intense emotion."³⁹

In earthquake disasters, calm and high-minded behavior has been observed in persons who were able to think and act effectively instead of affectively.⁴⁰ Conversely, thought can give place to much movement of the limbs or to other reactions.

Evidently some forms of alternative reaction are essentially native. Examples are the shifts to skeletal-muscle systems, to emergency emotions, and to laughter and crying. Another example must be the resort to thought processes, for otherwise thinking would never occur. (Thought patterns, of course, are largely if not wholly learned.) Yet the degree to which any of these alternative systems is used depends greatly upon learning.

When damp weather makes desk drawers stick, their owners react characteristically. A large man, aged 50, always pulls, pounds, stamps, and thunders, somewhat shaking the building. A little woman of about the same age always laughs. Perhaps native differences enter here; yet it would seem that the man could have learned to laugh uproariously, or the woman to scold and weep, upon any like occasion.

Travelers say that the Japanese and Chinese habitually substitute

³⁹ Adapted from J. W. Bridges, *J. Abn. Psychol.*, 1925, 19:339-340. Cf. Freud's observations that anxiety and overt symptoms are alternatives.

⁴⁰ PA 9 3130.

laughter, or near laughter, for various other reactions. According to one observer, "If you start to sympathize with a Japanese for the loss of a relative, you are met with a mirthless laughter. When an accident occurs, like when a friend of mine was spilled from a rickshaw and badly cut, the onlookers laugh, not from malice, but in recognition that something serious has happened. (Malice is expressed in quite a different way, by spitting on the person, or, if they are afraid to do that, by spitting on the ground near his feet.)"

Another observer, who lived in Japan for several years, offers the following as typical: "A friend of ours, a man to whom I had been giving special lessons in English, called one afternoon to invite us to the funeral of his little daughter. We did not suspect this at first because he began with small talk and somewhat hysterical laughter. When he told us that his child was dead he laughed again, and after asking us to come to the funeral he went away laughing. At the funeral, we noticed that he moved about among the guests, offering them cigarets, and smiling and laughing. It looked as though he wanted to make everybody happy."⁴¹

In our country, various learned substitutions of reactions are observable. Many a phobic patient, when too hard-pressed by a particular fear, calls up some other fear. This process often spreads the psychopathic state to other mental systems; but temporarily it gives relief. Many a patient finds relief in some absorbing activity. A man of 40 found relief in exercise, flattering reviews of his publications, any kindness to him, pleasant home conditions, tender emotion, romantic love, and joy as opposed to depression. Among normal persons, according to Hall, "one carries a bit of wood in his vest pocket and bites it when he begins to feel the aura of temper. Many go off by themselves and indulge in a luxury of expressions they want none to hear. Girls often play the piano loudly. Some think best of all."⁴² We should suppose that resort to cortical activity must be peculiarly subject to learning, since such substitution is central to self-control. We *learn* to think before we speak or act impulsively.

When it comes to alternativeness between acquired patterns, the role of learning is most obvious. The child walks *or* skips; the youth dances a two-step or a waltz; the acrobat runs on his feet or on his hands; the student studies his history or his mathematics; Socrates

⁴¹ Communicated by Harriet R. Cobb and by Frederick W. Brown. The former suggests that the custom of laughing may have developed to avert the demons.

⁴² Adapted from Boris Sidis, *The Causation and Treatment of Psychopathic Diseases*, 1916, 334 (Badger); W. S. Taylor and Elmer Culler, *J. Abn. Psychol.*, 1929, 24:347; G. Stanley Hall, *Am. J. Psychol.*, 1915, 26:440-441, or Edward S. Robinson and Florence Richardson-Robinson, *Readings in General Psychology*, 1929, 597 (Univ. of Chicago Press). Cf. also Luria, *op. cit.*, 264-266.

decides whether to escape from his prison or to drink the poison hemlock;—these substitutions occur because the several patterns of reaction have been so well learned and integrated that they can be touched off to the exclusion of certain other patterns. When the patterns are not thus well learned and integrated (normally the two processes go together), the child is liable to walk skipingly, and the youth to waltz in the two-step manner, if at all; the student's mathematics interferes with his history; and Socrates would have been tense in his martyrdom. Partially assimilated activities cannot be depended upon for alternative reaction.

It is interesting to note popular philosophies that extol one or another of the general classes of reaction. Some people believe that the real satisfactions of life are appetitive. Some think that hedonic reactions distinguish the bearer as fine-grained, and are the always-available goods. Others espouse sensory reactions as "the windows of the soul." Various individuals champion the anger part of the emergency series; holding that to get angry at anything that goes wrong is hearty, that to become thoroughly angry once in a while is good for the soul, and that people who do not get angry lack vitality. There are believers in "a good cry," and believers in laughter as the cure for many if not all troubles. Thought as a panacea has been preached by Christian Science and other cults; and thought as the royal road to adjustment has been urged by gropers toward the stoical, especially the Spinozistic, philosophy. Muscular exercise, as the way to "work off the blues," "a grouch," or any restlessness, is the faith of some who perhaps think themselves related to the pragmatists.

Mechanism of alternative reaction. The mechanism of alternative reaction turns upon that of central inhibition. In central inhibition, we have assumed, the checking excitation somehow negates the effect inhibited. While the details of this process are speculative, apparently it occurs only when the relevant nerve centers in the cord and any needed higher levels are sound and are sufficiently but not excessively excited. Thus alternative reaction breaks down with disease, intoxication, fatigue, or great general excitation.

Learned alternative reaction often reflects development from conflictful to central inhibition. As Hamilton said, "An animal may be so trained that, in spite of positive tendencies to react in a particular way to a particular stimulus, it will finally cease to make an appreciable direct response to that stimulus. Any person who has ever trained a hunting dog to follow only the fox scent will accept this generalization. The young foxhound will first respond to a rabbit scent with free trail-

ing movements, then, as his training progresses, with abortive trailing movements, and finally, if he qualifies as a good hunter, he will make no observable response to rabbit scents. Observation of his behavior while he is being trained suggests that at first inhibitive interference with the reaction-arc connections for rabbit-trailing occurs near the effector end of the arc, but that as his training progresses this interference moves backward, as it were, toward the receptor end."⁴³

Similar "moving backward" of interference occurs in human subjects. Only the trained typist can shift from one style of keyboard to another. Jersild thought that "just as a given mental set comes into being through practice, so a more comprehensive mental set, calling for shift between activities which taken separately involve mental sets of their own, can be formed through practice. After more or less practice, depending upon the activities involved, this more comprehensive set will function just as effectively as the simpler mental sets."⁴⁴ Thus ability to shift is not a separate ability but an aspect of the general ability to learn and to integrate the alternative reactions, particularly through clear understanding. We must conclude that Socrates drank the hemlock easily because that pattern of response, with all that it meant, was organized with his total attitude toward life.⁴⁵

Limits on alternative reaction. An important result of such substitution of reaction seems to be that the unused alternative patterns do *not* persist as "balked dispositions" which press for "expression." This raises the question, Is alternative reaction a panacea for all tensions?

Unfortunately or fortunately, alternative reaction is not a panacea: there are limits to the process. It is most effective, apparently, in those situations for which the motivation is either a general condition, such as adrenin in the blood, or an intention, such as to take exercise or to solve a given problem, for which one of two or more response patterns may be adequate. Yet even here some limitations appear. We do not know, for example, that "laughing off" the adrenin in the blood (through the chemistry of exertion) is as *economical* as "working it off" with the long muscles. And whenever an intention develops for a specific form

⁴³ Adapted from Gilbert V. Hamilton, *An Introduction to Objective Psychopathology*, 1925, 273-275 (Mosby). Cf. such studies as Georg Schwarz, *Psychol. Forsch.*, 1927, 9:86-162; and those mentioned in Arthur T. Jersild, *Arch. Psychol.*, 1927, No. 89:7-11.

⁴⁴ Adapted from Jersild, *loc. cit.*, 58, 79.

⁴⁵ For social bearings of this point, cf. Thomas M. French, *Am. J. Sociol.*, 1939, 44:922-931; W. S. Taylor, *Sewanee Rev.*, 1935, 43:311-326.

of exercise, or to solve a problem by a particular method, alternative reaction becomes less applicable. Thus, a boy who wants to swim in Lake Pushaw but is allowed to swim only in Lake Chemo is somewhat disappointed; if he is forbidden to swim, and is allowed only to pitch horseshoes at home, he is disappointed more; and if he is denied everything but mowing the lawn, he is much thwarted.⁴⁶

Furthermore, many of our urges inhere neither in general physical conditions nor in goal-ideas, but in specific intraorganic excitations that persist until relieved in specific ways. In this group come all the basic urges of hunger, thirst, respiration, circulation, heat, cold, pain, fatigue, elimination, a vital part of sex in adult males at least, and probably other organic conditions, including "restlessness or the need for action." These urges are relieved only, so far as we know, by nourishment, liquid, air, blood supply, normal temperature, and removing the causes of the pain and of the other organic states. (This is no argument for license.)

It is possible to condition a dog to salivate benignly in response to a noxious stimulus; but there is a limit to such contrary conditioning, and when that limit is exceeded the dog suffers a nervous breakdown.⁴⁷

In fine, there are limits to alternative reaction *within* a given class of reactions; as when an individual tries to meet a difficulty by one muscular action after another, until, failing with all actions, he becomes angry or weeps. There are also limits *between* classes; as when one is in a dusty place and finds no other reaction that will substitute for breathing.

Learning, Remembering, and Forgetting

Evidently, learning, remembering, and forgetting occur through the connectors. We shall consider these processes later, in a special chapter.

Conflict and Dissociation

Also to be developed in special chapters, conflict and dissociation should be recognized here as connector processes.

Conflict. Conflictful inhibition, as the name implies, involves more or less conflict. When such inhibition becomes acute, widespread, or prolonged, especially when it implicates the higher, learned motives,

⁴⁶ Cf. the experimental studies cited by Koffka, *Principles of Gestalt Psychology*, 1935, 334-341 (Harcourt). Cf. also Mary Henle, *Contribs. to Psychol. Theory*, 1942, 2:No. 3.

⁴⁷ I. P. Pavlov, *Conditioned Reflexes*, 1927, 302 circa (Oxford).

we call it conflict. *Conflict is great competition between responses within the organism.*

The forms of conflict parallel those of conflictful inhibition. Mutual blocking, decrement, oscillation, abnormal compromise and confusion appear in acute hesitation, stuttering, occupational cramp, catatonia, and various other abnormalities, and notably in the special forms of conflict that we shall call repression and compulsion.

Dissociation. All of the connector processes hitherto considered involve the making, using, or fading of connections. Dissociation, supposedly, is some breaking of connections; a breaking which, like fading, may be reparable, yet it is not ordinary fading. *Dissociation is disconnection of parts otherwise than through normal forgetting.*

Disinhibition

Disinhibition is the removal of an inhibition. For example, a person whose speech ordinarily is so inhibited that he stutters may talk fluently during a fire. Such removal of inhibition seems to result either from inhibiting the original checking excitation, or from dissociating the checking excitation, or from both processes combined.

Integration

Integration requires plentiful excitations of parts, also organization of all reactions through the neural centers. Such organization involves any or all of the connector processes, diffusion (within limits), summation, convergence, advergence, facilitation, and association; also central inhibition for all effects that would not fit into integrated reaction. Integration of a complex organism requires that many effects of lower centers, especially, be centrally inhibited by excitations of higher centers.

Herein the higher centers express what Child, Coghill, and some others call the "polarity" of the organism. By this they mean that the normal organism has a head end whose processes subordinate those of the rest of the organism; the normal organism is polarized with reference to its head.

These investigators explain polarity in terms of "physiological gradient," that is, degree of metabolism or vital activity. According to the evidence, neural regions of high gradient dominate those of low gradient. In simple organisms, the regions of high gradient dominate autocratically, for themselves. In highly developed organisms, the

regions of high gradient dominate representatively, for all the parts together.⁴⁸

Consciousness

Here we consider not self-consciousness merely, but general consciousness or awareness.

Some things one does consciously, others, not consciously. Consciousness seems to wane with sleep, to disappear altogether under anesthesia, and to wax with waking. What is consciousness, and how does it work?

The conception. Consciousness as a something that freely perceives things, considers them, and operates the body from within is, of course, an outdated animistic conception. Consciousness as a natural condition, impossible to describe to one who has not experienced it, is an everyday fact. This fact implicates important philosophical problems. Into these we cannot enter further than to suggest that consciousness amounts ordinarily to a "fusion whole"⁴⁹ which contains various complexities and is correlated with neural events, neural processes.

Complexities of consciousness. Consciousness includes the ordinary field of attention. What more it includes depends upon the organization of the individual at the moment, as will appear in later chapters.

Consciousness occurs in different amounts at different times, from the least to the fullest consciousness.

Any moment's consciousness contains different degrees of clearness, from the unclearness of marginal objects to the clearness of whatever object is focal in attention.

Normally, consciousness moves or changes with a certain continuity from one interest to another. Abnormally, this continuity is broken, as in cases of amnesia and of alternating personality.

In extreme instances, apparently, consciousness can divide into different simultaneous systems, each with its own focus, through dissociation between systems of connections.

The mechanism of consciousness. In the familiar example, a person walks thinking of other things until he comes to a puddle, whereupon

⁴⁸ Cf. Charles M. Child, in *Personality and the Social Group* (Ernest W. Burgess, ed.), 1929, 21-22, 22-23, 26-28 (Univ. of Chicago Press), *Physiological Foundations of Behavior*, 1924, 257-258 (Holt); Raymond A. Bauer, *The New Man in Soviet Psychology*, 1952, 71 (Harvard Univ. Press).

⁴⁹ PA 8 2581.

he becomes conscious of his steps. Simple walking is taken care of by the lower centers, but complicated walking implicates the higher centers. The higher centers involve consciousness to a degree, at least, that the lower centers do not. Consciousness centers upon whatever most puzzles the individual at the moment.

If the motivation to walk and the motivation to avoid puddles conflict too strongly, consciousness of walking may fail, perhaps because the higher centers either get blocked with conflict or are pre-empted by sensations derived from the conflict.

It is possible, though not always easy, to become conscious of simple walking or of any other habit of which the person ordinarily is not conscious. Apparently this happens only when the habit becomes a problem for the higher centers, or when other problems lapse.

It does not seem possible to become fully conscious of problems whose elements are unfamiliar. Only the pianist who has learned to play a complicated scale can think exactly how to play that scale; though some persons can learn to play the scale without practicing on a piano, probably by thinking what relevant motions they do know, and learning the rest through implicit trial-and-error. Thus it would seem that, as Perrin suggested, "conscious analysis" of one's own learning is made possible by the progress of the learning itself.⁵⁰

What we know of evolution and the connector processes suggests the following view: Consciousness accompanies neural processes of different levels. The highest or most synthetic consciousness accompanies dominant processes of the highest levels. Lower kinds of consciousness accompany less dominant processes of those levels and the processes of lower levels. Whenever a higher consciousness wanes, a lower consciousness may become prominent; somewhat as when bright lights are extinguished, dim lights become noticeable.

Shift of Metabolism

Along with any shift of activity effected through the connector processes goes a supporting shift of metabolism. Thus, if a person turns from playing the piano to talking, his upbuilding body chemistry turns less toward his fingers and more toward his speech apparatus. Some consider every such shift a "sublimation" of "the libido" or of "the will to power." Apparently, every shift does involve the general circulation, respiration, and body chemistry to some extent; yet every shift seems

⁵⁰ Cf. F. A. C. Perrin, *J. Comp. Psychol.*, 1921, 1:308.

also to involve more or less localized energies. Furthermore, these shifts occur only within limits.⁵¹

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Shift of Metabolism: PA 11 3684.

⁵¹ Cf. Taylor, *Genet. Psychol. Monog.*, 1933, 13:No. 1, 84-85.

9

Conflict

I keep under my body, and bring it into subjection. . . . But I see another law in my members warring against the law of my mind, and bringing me into captivity to the law of sin, which is in my members. . . . For the good which I would, I do not; but the evil which I would not, that I do.

St. Paul

The mind, as far as it can, endeavours to conceive those things, which increase or help the power of activity in the body. . . . When the mind conceives things which diminish or hinder the body's power of activity, it endeavours, as far as possible, to remember things which exclude the existence of the first-named things.

Spinoza

In the inanimate world, conflict occurs between divers mechanical, electrical, and perhaps other forces. Sociological conflict involves competition or combat between groups, between individuals, or between a group and an individual. Psychological conflict occurs within the individual, between his own interests or parts.

This intra-individual conflict is our concern. We shall try to understand such conflict, first in general, then in the two special forms called repression and compulsion.

Conflict

Examples. Klebanoff trained rats to go from the middle of an alley to get food at whichever end was lighted. When he placed these rats at the middle and lighted *both* ends of the alley, the rats hesitated

a little, became active at once, reversed a few times, and soon left the middle area.

He trained other rats, when placed at the middle of the alley, to avoid an electric shock by staying away from whichever end was lighted. When he lighted both ends of the alley, these rats hesitated more than the other rats, were less active at first, reversed oftener, and spent more time in the middle area.¹

Holt gave this example: "A man sits by a country roadside with a Scotch shepherd dog lying near him. Another man, to whom the collie owes about the same allegiance, comes by and undertakes to call the dog away. The collie starts up, stands looking first at one man, then at the other, and back and forth; he begins to bark and spring about, yet without moving perceptibly nearer to either man, in an actual frenzy of indecision; finally, with a sudden spring he bounds towards the person whom he was originally accompanying, sits down snugly against the man and rests his head firmly on the man's thigh. The collie is now outwardly motionless, but his eyes are fixed on the other man and he is still under considerable tension, which subsides gradually. In this case the upshot course of action, although delayed, was not far from an 'algebraic' resultant of the collie's impulses, for he had reason to fear as well as to love the second man."²

According to Plato, "Leontius, coming up one day from the Piraeus, observed some dead bodies lying on the ground at the place of execution. He felt a desire to see them, and a dread and abhorrence of them; for a time he struggled and covered his eyes, but at length the desire got the better of him; and forcing them open, he ran up to the dead bodies, saying, 'Look, ye wretches, take your fill of the fair sight.'"³

Sherman remarked that a young man who comes from a small pious town to a large university is likely to develop many conflicts. If he joins a wild fraternity, for example, his fundamental attitudes regarding liquor, gambling, sex, God, and so on, are challenged by the dominant group. He may attempt to behave like his fellows, but his own attitudes make him uncertain. He is like one who strongly dislikes some new food but is forced to eat it when others do; though he tries to be nonchalant and even to like the food, he may become nauseated.⁴

Roberts and Jackson cited a "typical case of a sensitive, emotional,

¹ Seymour G. Klebanoff, cited by Neal E. Miller in J. McV. Hunt, *Personality and the Behavior Disorders*, 1:431-465 (q.v.) (Ronald).

² Adapted from Edwin B. Holt, *Animal Drive and the Learning Process*, 1931, 241-242 (Holt).

³ Adapted from Plato, *Republic* (Jowett, tr.), 1892, IV, portions 439-440 (Oxford Univ. Press).

⁴ Abstracted from Mandel Sherman, *Mental Conflicts and Personality*, 1938, 116-117 (Longmans).

thoughtful man, drawing a comfortable but not excessive income from a secretarial post in the city. He married when he was twenty—he is now ten years older. Between him and his wife is a sort of humdrum friendship; but they have hardly an interest, and certainly not an ideal, in common. They have, however, a couple of children, aged seven and nine. About six months ago the husband met a woman of his own type, and between them a very strong mutual love quickly developed. To this man, the conventions mean very little; but his sense of responsibility is as great as are his idealistic beliefs; moreover, his wife's scale of values is the exact reverse of his.

"It has seemed to him almost blasphemy not to seize the one opportunity offered by Fate to him and to his lover. One minute, he almost decides to escape with his lover. The next minute, he almost decides to stick by his wife and children, try to banish the idyllic picture of a new life from his mind, and play the part which his social conscience tells him he 'ought' to play.

"Since the problem seriously confronted him, this man's life has become a little hell. His mind, beneath the surface, is continually occupied with it, so that his everyday work seems a burden too great for him to carry. He worries all day and sleeps little at night. He is himself only half conscious of the reason why things that used to seem simple and trivial now completely overwhelm him; he calls it 'overwork' and his friends urge him to take a holiday."⁵

In the laboratory, human subjects can be taught to respond to a given stimulus in one way, then, after that has been learned, to respond to the same stimulus in an opposite way. Until this new way is well learned, the old and the new patterns conflict; the subject makes errors; and he is not happy.

Certain cases of stuttering represent conflict between normal speaking and some other vocal reaction like crying, shouting, or swearing.

Many persons feel both inferior and, compensatorily, superior. Such persons may oscillate between depression and elation, and between subservience and bumptiousness.

Braid hypnotized a firm teetotaler and assured him repeatedly that he was drunk. According to an observer, "it was most amusing to witness the conflict in his mind between the idea thus *forced* into it, and the idea derived from his habitual practice that he *'could'* not have had any gin and water."⁶

⁵ Abstracted from Harry Roberts and Margaret Nelson Jackson, *The Troubled Mind: A General Account of the Human Mind, and Its Disorders and Their Remedies*, 1939 61-62 (Dutton).

⁶ William B. Carpenter, *Principles of Mental Physiology, With Their Applications to the Training and Discipline of the Mind, and the Study of Its Morbid Conditions*, 1875, 459 (Appleton).

Brickner told a hypnotized subject that after waking he would invert a certain drinking glass. The subject at once resolved not to obey the suggestion, and he remembered it after waking from the hypnosis. Nevertheless, after waking, he found himself strongly moved to do as he had been told. He became so preoccupied with resisting the suggestion that he could not follow the conversation around him; and he became anxious, agitated, and annoyed. Eventually, he decided that he had better invert the glass. When he did so, he felt relieved.⁷

Luria hypnotized ten subjects, and suggested to them that, after the hypnosis, they would want to say, "red and blue, red and blue," yet would not be able to say these words. After waking, seven of the ten subjects showed acute conflict. Three subjects worked out ways of resolving the conflict.⁸

Luria suggested to several hypnotized subjects that after waking they would think of the names of birds. He did not tell them to remember this suggestion after waking. When the subjects were awake, he asked each to give a series of free associations. In giving their series, some of the subjects resisted birds' names as irrelevant. For example: "House—tram—magpie—divan—pillow—university—plank—mirror—chicken—lamp," etc. "The subject says that he does not know why birds pursue him." "Raven—stork—goose—duck—store—poverty—word—time—Mary Pickford—red—beyond the sea—they flew—storks—I do not want to say anything more . . . Why do I tremble? I am shaking so that even my hands tremble!"⁹

According to Miss Beauchamp (pronounced Beecham), one of Prince's cases of multiple personality, her conscious personality liked school immensely, but her subconscious personality found it boring. Consequently, subconscious impulses made her play truant, "strangely enough, against her will. 'She didn't want to do it but she did'; and what is more got punished for doing what she didn't want to do."¹⁰

In the case called B. C. A., Prince asked personality B about certain memories that had greatly distressed and humiliated personality C but merely amused B. As soon as B started to tell these memories, painful spasms of the mouth and throat made her dumb until she started to talk of other things. When she reverted to the memories in question and tried to force herself to tell them, she became generally confused, then limp and apparently unconscious. There remained, however, a

⁷ Abstracted from Richard M. Brickner and Lawrence S. Kubie, *Psychoan. Quar.*, 1936, 5:474-478.

⁸ A. R. Luria, *The Nature of Human Conflict*, 1932, 254 (Liveright).

⁹ Adapted from op. cit., 244, 246, 248, 249. Cf. also 165-166.

¹⁰ Morton Prince, *Clinical and Experimental Studies*, 1929, 160-161 (Sci-Art). For further examples, cf. Note 12, below.

limited subconscious system which, through automatic writing, revealed the subconscious factors in the conflict.¹¹

In the Beauchamp case, conflicts caused various blockages, amnesias, abulias, anesthetics, alexias, resistances, emotions, illusions, hallucinations, contractures, paralyses, automatic acts, and errors.¹²

In such cases, at the moments when personalities alternate, when they must be about equally dominant, general blockage of consciousness is usual.¹³

Conflict may occur also between processes both of which are subconscious. For example, in B. C. A., "while the right hand had been engaged in automatic writing, the left hand, motivated by a subconscious sentiment antagonistic to the subconscious ideas performing the writing, has seized the pencil, broken it, or thrown it across the room."¹⁴

Thus, as Prince pointed out, conflicts may occur between two or more conscious processes; between conscious and subconscious processes; and between subconscious processes.

Definition. The prototype of conflict is conflictful inhibition, which we have taken to mean one excitation's resisted checking of another excitation's characteristic effect. Indeed, conflict seems to be nothing more than acute, widespread, or prolonged conflictful inhibition. Usually if not always, such inhibition involves some of the higher, learned motives on at least one side of the conflict. Always, we assume, conflict involves actual muscular competition within the organism. Thus *conflict is great competition between responses within the organism.*

According to this definition, merely potential conflict is not conflict. A parting of the ways is not conflict, though it may give rise to it in someone who does not know which way to take. Calm deliberation over which way to take is not conflict either, though it may give way to conflict when the deliberator becomes hurried or fatigued.

Conditions for conflict. It seems evident that conflict occurs whenever *strong motives arouse mutually antagonistic responses in an organism unready to manage those motives otherwise.* The organism is so unready because other ways of managing the conflicting motives are either natively impossible, or undeveloped, or inhibited, or dissociated.

¹¹ Abstracted from Morton Prince, *The Unconscious*, 1921, 471-473 (Macmillan).

¹² Cf. Prince, *The Dissociation of a Personality*, 1910 (Longmans).

¹³ Cf., for example, *ibid.*, 172, 178.

¹⁴ Prince, *The Unconscious*, 480.

Thus, it is impossible for a normal person under water for more than two or three minutes to avoid conflict between the urge to breathe and the urge against choking and drowning. A person who is unfairly reviled may not have learned how to remain calm. One who has learned to remain calm may become so preoccupied with other things, or so fatigued, or otherwise inhibited or dissociated, that his pattern of calmness fails to function, and he develops conflict between the urge to retaliate and the urge to remain dignified.

By-products. Because conflict is great competition between responses, it generates more or less emergency emotion and fatigue. Each of these, given the right conditions, predisposes to disintegration.

Repression

An important form of conflict is repression. In order to understand repression at all, we must first mark off several processes that are often confused with it.

Processes to be distinguished from repression. Freud distinguished between checking of components whose energy is thereupon relinquished and checking of components whose energy continues; and he called only the latter process, especially when it involved exclusion of the checked components from consciousness, repression.¹⁵ Many who came after Freud seem to have glossed over that distinction. We observe it by distinguishing between central inhibition and conflictful inhibition, and by recognizing conflict as an exaggerated form of conflictful inhibition, and repression as a special form of conflict. Thus repression is not *central inhibition*.

Often things that seemed forgotten are recalled in detail. A man who had spoken Swedish until he was ten years old thought he had forgotten it; but, at the age of 40, when he had a head injury, for a time he could speak only Swedish. Some psychopathologists have inferred from such cases that all "forgetting" is really repression, and that "the subconscious" conserves every experience.¹⁶ That generalization, however, cannot be proved; and it seems likely that only memories which have been most completely learned, or specially preserved, or both, whether through repression or otherwise, are fully conserved. All the rest seem to fade through *normal forgetting*.

¹⁵ Sigmund Freud, *Autobiography*, 1935, 54.

¹⁶ Cf. Ernest Jones, *Papers on Psycho-Analysis*, 1918, 109 (Wood); PA 13 3677.

Some would interpret ordinary sleep as "repression of the waking consciousness." The next chapter presents an interpretation of sleep and some other states as disconnection of parts otherwise than through normal forgetting, in other words, as *dissociation*. Repression, as viewed here, does cause some forms of dissociation, yet remains a different process.

Examples of repression. Wingfield told of a man who had had a shocking war experience. This man found any reminder of the experience so horrifying, even before he recalled the actual memory, that he at once thought of something else. As Wingfield says, "It was much like knowing that a picture was there and refusing to look at it. Soon this turning away became habitual. He seemed to feel rather than know what was coming, that the incident was on the verge of being fully remembered; but he instantly repressed it and drove it out of his mind."¹⁷

Erickson reported that a young man on parole from a penal institution stole an automobile and took a young woman for a drive. They intended to spend the night at a road house of ill repute. The girl knew the man's criminal history and legal status, but she did not know that the car was stolen. The fellow drove so recklessly that the car overturned, pinning the girl beneath it, and burst into flames. The driver freed himself and fled from the scene without trying to save his companion. The girl was seriously injured and, before the passing motorists could rescue her, became severely burned. The man was apprehended. At the trial the girl, with much bitterness and hatred, and the several motorists recounted the facts; and the man confessed that those were the facts.

About eight months later, the girl, entirely upon her own initiative, sought a retrial for the man on the grounds that she had given false and mistaken testimony. When Erickson told this to the man, he retorted: "She's nuts! She told the truth the first time"; and he went on to explain that, in view of his evident guilt, a retrial might bring him a longer sentence than the relatively short one he had received. Upon interviewing the girl, Erickson found that she had come to believe that the man had put forth every effort to rescue her. She even "described" his effort in detail. She explained that her intense suffering and the long months she had spent in the hospital had made her realize that her original account was false. She insisted that no human being would desert his companion in such an accident, and that, as for being so

¹⁷ Adapted from H. E. Wingfield, *An Introduction to the Study of Hypnotism Experimental and Therapeutic*, 1920, 122-123 (Baillière).

deserted, one "could only imagine it but could not possibly endure it." When confronted with her original testimony, with great contrition she explained each item as a misunderstanding or a misstatement, even as intentional malice, caused by the shock and pain that she had suffered. The prisoner's own confession of the facts she casually disregarded. She wanted a retrial, to undo the injustice to the man and to prove that the event as described had never taken place. Only when Erickson pointed out that the man's sentence was well within the statutory limits for stealing a car and violating parole, and that the court seemed not to have imposed any sentence for criminal negligence of the girl, she felt relieved and considered the incident closed. Apparently she concluded that her "mistaken" testimony never had been believed; which, in her view, proved further that the original experience had not occurred.

Erickson observed of other cases that it is not unusual for a female, after brutal sexual usage, to testify first against the offending male and then, after a period of suffering, to reverse her beliefs and attitudes and to testify earnestly on his behalf.¹⁸

A small boy was afraid of an old mill that stood beside his way to school. Finding himself unable to "get used to it," every time he passed the mill he "kept his mind off it" by "thinking hard" of being a knight in armor. Before long, whenever he approached the mill, automatically he became preoccupied with knighthood.

The unpopular girl who stole coins from her mother's purse was able to do it by thinking, not of the stealing, but of how popular those coins would make her when they bought ice-cream cones for her school-mates. Afterwards, she was able to "forget" the stealing by thinking likewise of happier things.

A man who has neglected his family may recognize not his negligence but the faults of his family. He may note particularly how his own flesh and blood have failed to appreciate him and have neglected him.

Definition of repression. Apparently, every example of repression involves conflict, though not necessarily conscious conflict, between two responses: one which is painful, shameful, or in some way unwelcome; and one which, in comparison, is welcome. Here "unwelcome" implies checked, and "welcome" implies facilitated, by what we may call the higher personality. So long as the repression continues, the welcome response itself checks the unwelcome one, not through central

¹⁸ Cf. Milton H. Erickson, *Arch. Neurol. and Psychiat.*, 1938, 40:548-553.

inhibition, but through conflict. *Repression is conflict in which welcome predominates over unwelcome response.*¹⁹

A "repression" is the unwelcome response so repressed.

How repression comes about. To see how repression comes about, let us consider an unusually clear case:

A six-year-old girl was sexually curious and thrilled in watching a little boy display his sexual organs to her. Her father chanced to see what she was doing. Aroused "to teach her modesty," he rushed up behind her and struck her in the face, incidentally breaking her nose, and made her feel for a long time afterward that she had been bad indeed. From the day the event occurred, thinking of it made her think of the facial pain and the fright, then of the shame and the parental disapproval. Soon anything that tended to remind her of the original event came to remind her of nothing more than the pain, fright, and disgrace. Then, as those punishments were unpleasant, she learned to think not of them but of the times she was good, and of how happy she and her parents were when she was good. She became a model child, dutiful, and interested only in "higher things." She married a man whom she respected and loved tenderly; but she "never had the slightest sexual desire" until the foregoing history was worked out during a brief analysis when she was more than fifty years old.

Repression would seem to develop as follows:

A strong urge to a response (e.g., the little girl's sexual interest) brings *unwelcome consequences* (pain, fright, shame). Therewith, by association, the original response becomes unwelcome. At the same time, the unwelcome consequences arouse *a stronger urge to a contrary response* (shrinking from the punishment, or being good) which has relatively *welcome consequences* (sense of relief or happiness) and is therefore a welcome response. *The two responses conflict continually, yet the more welcome one predominates over the other.*

Through association, *the unwelcome response comes to arouse the welcome one* (sexual interest arouses shrinking or conventional behavior directly). Quite likely, through further association, *the cues for the unwelcome response come to arouse the welcome response* (the place where the boy was, his physical type, etc., remind only of proper behavior); and often *the welcome response is replaced by a still more*

¹⁹ Cf. the suggestion by Margaret Floy Washburn, *Movement and Mental Imagery*, 225 (Houghton Mifflin).

welcome one (shrinking gives way to filial behavior, filial behavior, to good citizenship), and so on.

If the unwelcome response is one that can be centrally inhibited, the conflict between the two responses may grow less, until central inhibition occurs instead of repression. Otherwise, the repression may continue indefinitely, perhaps becoming more and more complicated; or the opposed responses may become more or less dissociated, either in general or from each other.

In some cases, apparently, as Freud maintained, repression occurs without the unwelcome response ever having come into full consciousness: the unwelcome response arouses a repressive response without explicit awareness.²⁰ In other cases, repression seems quite conscious, even deliberate. Thus, a man converted to an ascetic religion, upon concluding that every sexual response is evil, may consciously seize upon whatever approved response most successfully checks the sexual one and may cultivate that approved response against even the excitants of the unwelcome response. (When consciousness does thus enter, we assume that it enters not as a *deus ex machina* but as correlated with a more complicated, higher-level, yet deterministic response.)

Consequences of repression. For so long as repression continues, there are several consequences:

Obviously, *successful repression prevents the directly unwelcome consequences of the opposed response*. Thus, through repression of her sexual response, the girl saved herself from further punishments; and through repressing the memory for the punishment received, she suffered no more from that memory—as far as she knew (a point that will be clearer later).

Repression forces out of consciousness especially the memory factor in the unwelcome response. This means that the ideational context of the unwelcome response is particularly excluded from the ordinary waking consciousness. At the opposite extreme, as will appear later, the affective factor is not so surely excluded from this consciousness. For example, one man had “forgotten” the time a turkey gobbler chased him when he was a small child; nevertheless, whenever a bird as large as a robin was near, this man felt “unaccountable fear.”

Since both responses function to some extent even while the unwelcome one is held down, both responses are practiced, kept in trim.

²⁰ Cf. Ernst Kretschmer, *Hysteria* (Boltz, tr.), 1926, 96 (Nerv. Ment. Dis. Pubg. Co.).

Thus repression keeps the repressed response always ready to function when given a chance.

Repression keeps the unwelcome response not only in practice but also more or less apart from impressions which might modify it. Thus, apparently, *repression subconsciously preserves the repressed memories*. Such memories, when recalled through hypnosis, automatic writing, or any other method of analysis, often are recalled with astonishing accuracy, even to the size of things relative to the size of the person when he experienced them. For example, a forty-eight-year-old hypnotic subject hallucinated, at different times, a great badge with "2" on it, a giant policeman, and a woman more than twice the ordinary height. Police records showed that the "2" was the actual number of the policeman who came into the childhood incident being recalled. The policeman was hallucinated as a giant because the child was then less than ten years old. The tremendous woman was his mother as he looked up to her at two and a half.²¹

Since the unwelcome response continues to conflict with the welcome, repressing response, *repression consumes energy*; as many a case shows strikingly. One of McDougall's amnesia cases, when asked to grip a dynamometer as hard as possible, registered only 30 kilograms. Immediately upon recovering from the amnesia, however, he registered 90 kilograms—an increase of 200 per cent.²²

In so far as repression fails, *the unwelcome response comes out in compromises and lapses*. Common examples are the sexually repressed person's gloating over notices of engagements, marriages, and sexual crimes; the egoistically repressed person's awareness of the egoism of others; and the "slips" of sexual words in puritanical speech, and of selfish words in outwardly altruistic speech. Any response which for any reason becomes unwelcome may be thus repressed and come out in compromises or lapses or both. More serious examples are various psychoneuroses, considered in different contexts in this book.

Typically, *each compromise or lapse somewhat relieves the special excitation of the unwelcome response*. Thus, the repressed sexual response finds some outlet when the individual hovers, even "disapprovingly," around sexual topics; and a repressed anger finds some outlet

²¹ Cf. William Ellery Leonard, *The Locomotive-God*, 1927, 70, and passim (Century); W. S. Taylor and Elmer Culler, *J. Abn. Psychol.*, 1929, 24:344-345.

²² William McDougall, in H. Crichton Miller (ed.), *Functional Nerve Disease*, 1920, 192 (Oxford Univ. Press).

likewise when the individual expresses his loving kindness in unusually vigorous tones.

With continued practice of the repression, *the repressing response may come to habitually arouse the unwelcome one*. For example, a pianist subject to stage fright tried to overcome it by "getting a grip on himself," which to him meant "feeling strong" through tensing his muscles and refusing to admit that he had any stage fright. As the stage fright continued, and he tensed his muscles every time he felt it coming on, the sight or thought of an audience came to touch off both his stage fright and his general muscular tension; and any general muscular tension, or even the thought of controlling himself, came to touch off the stage fright. Likewise, the ascetic may repress his sexual response by imagining his own martyrdom, until, through habitual linkage, imagining the martyrdom arouses the sexual response. As Spinoza said: "If the mind has once been affected by two emotions at the same time, it will, whenever it is afterwards affected by one of the two, be also affected by the other."²³

Incidentally, *the repressed response may organize with other responses and become a repressed system*, a more complex and ramifying functional structure to be kept down.

Likewise, *the repressing response may organize with other responses and become a repressing system*. Thus the individual may develop a relatively "rigid" conscious personality with which to repress his own unwelcome components.

Through inhibiting the opposed and facilitating the allied higher responses, *a repressed system often breeds special states of consciousness congenial to it*. Such states include many fantasies, obsessions, delusions, hallucinations, absent-mindednesses, dreams, somnambulisms, hysterical "faintings," trances, fugues, and the phases of multiple personality; all of which we shall consider in due time.

Despite the tendency for the repressing and the repressed systems to come to arouse each other, the two systems may oppose each other enough to become so disconnected that the one cannot call at least the intellectual part of the other into consciousness with it. Thus *repression often causes dissociation*.

Finally, through the loss of memories, the loss of control of affects and other reactions, the waste of energy, the compromises and lapses,

²³ *Ethics*, III, xiv.

abnormal systematizations, and dissociation, *repression tends to make the individual neurotic*; that is, to make him so "tender in spots," and so given to peculiar, unadaptive reactions, that he obviously is not well integrated. This outcome, of course, is not inevitable, because often there are other processes going on at the same time that tend to work out the repression and make the individual well integrated. Moreover, neuroticism can result from other factors than repression.

We must conclude that repression, for all its relief from immediate stress, is a poor substitute for more fundamental adjustment. (This is no argument for license.)

Compulsion is an even poorer substitute.

Compulsion

Compulsion is the reverse of repression: *Compulsion is conflict in which unwelcome predominates over welcome response*. Examples are obsessive thoughts, words, and acts, such as obscene jingles, profanity, kleptomanias, and dipsomanias, which the individual cannot stop.

The mechanisms and consequences of compulsion seem to be the same as those of repression, except that the unwelcome response predominates; as follows:

A strong urge with unwelcome consequences sets up an unwelcome response which arouses and conflicts with a welcome response but predominates over the welcome one habitually; even being aroused by the welcome one or by any excitant of it, and perhaps giving way to some still more unwelcome response which likewise predominates over the welcome one.

The resulting compulsion prevents the welcome consequences of the opposed response; often forces out of consciousness, for the time being at least, the memory factor in the welcome response; keeps that response ready to function when given a chance; subconsciously preserves its memories (though in a different system from the unwelcome response, as will appear in the chapter on The Subconscious); consumes energy; likely allows compromises and lapses which express the welcome response; thereby relieves the special excitation of that response; may come to habitually arouse, somewhat, the welcome one; may arouse the welcome response to organize with other responses and become a system; may itself organize with other responses and become a system; may give way to special states of consciousness congenial to the welcome response; often causes dissociation; and tends to make the individual more neurotic, if not psychotic, than he was when he de-

veloped the compulsion—unless constructive tendencies, to be considered in later chapters, preserve or increase the individual's integration.

Frequently, compulsion alternates with repression, the compulsion occurring as repression weakens, and repression occurring as compulsion weakens in turn. Frequently, too, compulsion is combined with repression, in that the affective factor and the overt component of the unwelcome response function compulsively and consciously, while the memory factor, the set of ideas that makes the response intelligible, is repressed.

The man who had been frightened as a child by a turkey gobbler could behold a sizable bird rather calmly if first given time to think, "This is not that turkey." When he was tired, however, his thought was not so effective, and the same bird frightened him. When so frightened, he felt the fear and shrank from the bird compulsively and consciously; and, for the time being, his memory for the turkey was repressed.

Evaluation of Conflict

Though conflict often moves men to improved ways and insights, continued conflict is uncomfortable, inefficient, and wearing, and can lead to pathological effects.

Almost everyone dislikes conflict in himself. The man blocked between reading his paper and listening to someone who speaks to him is likely to answer the doorbell quickly, as a way out of his dilemma. Who, in attempting to solve some problem which exacts much trouble for small return, has not found his thoughts wandering obstinately out of that conflictful situation? In more serious matters, men pray to be helped out of their unbelief, meaning their doubt—often a most disturbing form of conflict.

The average person dislikes conflict in others. For example, he dislikes doubt in others, because that threatens the others' loyalty to his causes and suggests that he, too, might doubt. He prefers the man who does the right, not conflictfully and proving "strength of will," but easily and wholeheartedly.

Almost every person knows that conflict, if long continued, is not good mental hygiene.

Apparently, conflict is good only when it prevents some worse reaction or is a means to some better reaction.

Before turning to better reactions, we must consider dissociation.

Further References

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10

Dissociation

No magistrate should drink during the year of office, nor should pilots of vessels while on duty taste wine at all unless as medicine.

Plato

To say truth, nothing is more erroneous than the common observation, that men who are ill-natured and quarrelsome when they are drunk, are very worthy persons when they are sober: for drink, in reality, doth not reverse nature, or create passions in men which did not exist in them before. It takes away the guard of reason, and consequently forces us to produce those symptoms, which many, when sober, have art enough to conceal. It heightens and inflames our passions (generally indeed that passion which is uppermost in our mind), so that the angry temper, the amorous, the generous, the good-humoured, the avaricious, and all other dispositions of men, are in their cups heightened and exposed.

Henry Fielding

In this chapter we shall consider what we take to be dissociation, its two principal types, and its possible basis; its relation to inhibition; the affective unity that occurs despite dissociation; and, so far as seems relevant, sleep.

Dissociation

Examples of dissociation. One goes to sleep as one becomes more or less generally dissociated, as one's associations fall apart otherwise

than through normal forgetting. Many persons, while passing into sleep, experience hypnagogic phenomena—involuntary muscular starts, odd ideas, little hallucinations, and half-dreams. Here some patterns are dissociated from the normal waking consciousness, yet are associated within themselves, enough to function apart from what is left of the waking consciousness. Whenever the individual is not wholly asleep, not generally dissociated throughout all his higher levels, he remains partly awake or dreams. In complete sleep, if such ever occurs, he is generally dissociated.

An experimental psychologist, while studying his own knee jerk, observed that he could "deaden" it "by a voluntary and entirely arbitrary deadening of excitability," the exact nature of which he could not make out. The deadening "was initiated by a complete relaxation of the thigh muscles, but it seemed to consist of something more." It resembled "a detachment, deadening, or going to sleep of the limb as though it never could move again and didn't belong to the body. The spread of the deadening was irregular following voluntary attention to the several parts of a limb or to various limbs. In extreme cases the eyes closed."¹

Abnormal suggestibility and hypnosis we shall interpret largely in terms of dissociation.

Other examples of dissociation include the phenomena of "logic-tight" or "mental compartments," mental epidemics, and various mental disorders.

"It is common enough for the friends of an insane patient who labors under the delusion that he is doomed to eternal damnation to employ the services of a clergyman in order to dissipate it by argument, and in one case which came under my care the aid of an eminent bishop had been invoked in vain. Those who fondly hope to overthrow an insane delusion by argument would do well to consider how little the most illogical convictions of sane persons are touched by the plainest demonstration of their unsoundness, and how easy some of them find it to hold contentedly side by side in their minds two logically incompatible opinions. . . . They admit, when pressed with quiet argument, that the leaders of their political party have done everything which they should not have done and left undone everything which they should have done in a great crisis, and at the same time when they get amongst their kind they shout and yell in sincere and exulting admira-

¹ Adapted from Raymond Dodge, *Psychol. Rev.*, 1926, 33:7, 8.

tion of the profound statesmanship shown on that and all occasions by these same leaders."²

When the populace suffers from general weakness, fatigue, boredom (which perhaps involves special fatigue from conflict), excessive conflict, excessive emotion, suggestion, drugging, or intoxication, unusual dissociation is widespread. At such times, inconsistencies and irrationalities are often epidemic. Most affected, of course, are the less stable individuals.

Hypnotic and other experiments, and various mental disorders, show that there may be dissociation of appetitive functions, such as the digestive system; of sensation, such as touch or pain; of memories, fantasies, reasonings, volitions; of muscular reactions, like walking, talking, or the movements of one side of the body; and of combinations of systems, in some cases complex enough to be called separate personalities. The dissociated systems may get beyond control and compel elaborate automatic activities, even making the individual go off on journeys, called fugues, which do not link consciously with either his previous or his subsequent life. In many cases the dissociated systems cause hallucinations of voices, visions, etc. The subject is liable to ascribe such intrusive reactions to other spirits than his own.

In a mirror-drawing experiment, each subject was requested to guide his hand by kinesthesia, contrary to the usual visual cues which appeared before him in the mirror. The subjects reported that their hands seemed somehow not their own: "The hand is controlled by something else, not by me." "It feels like someone else's hand or maybe my left hand." "It feels as if I were pushing someone else's hand." "I felt as if I were watching someone else's hand." "It feels like a detached hand."³

One day a quiet, well-behaved man, 22 years old, visited some friends. They offered him a drink of "moonshine." He soon became intoxicated, proceeded to drink heavily, and suddenly became excited and erratic. As he continued drinking, he became more excited. He began smashing the furniture in the house and finally leaped out of the second-story window, breaking his ankle as he struck the ground. His friends rushed out of the house to help him, but he had jumped to his feet and had run away across the countryside. He was not found until late the next day, sleeping on some marshy ground more than ten miles away. His feet were bare and badly lacerated, his clothes were torn to shreds, and, as it was late in the fall, he showed the effects of exposure.

When he was awakened he sat up, seemed bewildered, and asked: "What became of that cat I was chasing?" It developed that he had a total amnesia for all events subsequent to his first drink of liquor, and

² Henry Maudsley, *The Pathology of Mind*, 1880, 538-539 (Appleton).

³ Adapted from Elsa M. Siipola, *Psychol. Monog.*, 1935, 46:No. 6, 66-77.

that he had a faint idea that he had been chasing a cat. He was taken to the hospital, treated, and interviewed, but he seemed unable to recall anything of those twenty-four hours. Otherwise, his recovery was complete.⁴

A girl who, at the age of 19, contained a separate personality was described as follows:

"September 17, 1860. Wild with delirium. Tears her hair, pillow cases, bedclothes, night dress, all to pieces. Her right hand prevents her left hand, by seizing and holding it, from tearing out her hair, but she tears her clothes with her left hand and teeth. . . .

"September 29. Complains of great pain in right arm, more and more intense, when suddenly it falls down by her side. She looks at it in amazement. Thinks it belongs to someone else; positive it is not hers. Sees her right arm drawn around upon her spine. Cut it, prick it, do what you please to it, she takes no notice of it. Complains of great pain in the neck and back, which she now calls her shoulder and arm; no process of reasoning can convince her of the contrary. [To the present time, now nearly five years, she believes her spine is her right arm, and that her right arm is a foreign object and a nuisance. She believes it to be an arm and a hand, but treats it as if it had intelligence and might keep away from her. She bites it, pounds it, pricks it, and in many ways seeks to drive it from her. She calls it 'Stump; Old Stump.' Sometimes she is in great excitement and tears, pounding 'Old Stump.' Says 'Stump' has got this, that, or the other, that belongs to her.]

"November 12. From eleven to twelve at night sits up, apparently asleep, and writes, with her paper against the wall. After she awakes, seems to be unconscious of what she has written. . . .

"From November 20 to January 1, 1861. Raving delirium; pulls her hair nearly all out from the top of her head. . . . The right hand protects her against the left as much as possible. . . .

"February 1 to 11. Under the influence of magnetism [hypnotism] writes poetry; personates different persons, mostly those who have long since passed away. When in the magnetic state, whatever she does and says is not remembered when she comes out of it. Commences a series of drawings with her right paralyzed hand, 'Old Stump.' Also writes poetry with it. Whatever 'Stump' writes, or draws, or does, she appears to take no interest in; says it is none of hers, and that she wants nothing to do with 'Stump' or 'Stump's.' I have sat by her bed and engaged her in conversation, and drawn her attention in various ways, while the writing and drawing has been uninterrupted.

"January 10. When her delirium is at its height, as well as at all other

⁴ Communicated by Milton H. Erickson.

times, her right hand is rational, asking and answering questions in writing; giving directions; trying to prevent her tearing her clothes; when she pulls out her hair it seizes and holds her left hand. When she is asleep, it carries on conversation the same; writes poetry; never sleeps; acts the part of a nurse as far it can; pulls the bedclothes over the patient, if it can reach them, when uncovered; raps on the head-board to awaken her mother (who always sleeps in the room) if anything occurs, as spasms, etc.

"January, 1863. At night, and during her sleep, 'Stump' writes letters, some of them very amusing; writes poetry, some pieces original.

"Upon this one subject of her right arm, she is monomaniac. Her right hand and arm are not hers. Attempt to reason with her and she holds up her left arm and says, 'This is my left arm. I see and feel my right arm drawn behind me. You say this "Stump" is my right arm. Then I have three arms and hands.' In this arm the nerves of sensation are paralyzed, but the nerves of motion preserved. *She* has no will to move it. *She* has no knowledge of its motion. This arm appears to have a separate intelligence."⁵

When Coué visited Boston, a psychopathic woman in that city wrote a letter explaining that she was a Christian Scientist, that she didn't believe in suggestion, that during Coué's visit the whole air was poisoned by suggestion, that in fact one day in that dangerous period she had gone to a movie and sat next to a person who was coughing and sneezing with a bad cold—and the next day she herself had a terrible cold from the awful suggestions in the atmosphere.

"Depersonalization" also illustrates dissociation. The individual so affected "speaks of his experiences as occurring in a dreamlike state, of the loss of the sense of reality of contents both personal and external, of the loss of interest in these contents, and sometimes of an actual change in the size and the shape of objects."⁶

As we understand it, dissociation occurs in all persons during sleep at least, and in some persons more or less constantly.

Definition of dissociation. Every example of dissociation shows some breakup, some abnormal (though often not pathological) disconnection, of connections between parts. Such disconnection is abnormal in that it seems to involve not normal forgetting but some actual, though often only temporary, break. Thus *dissociation is disconnection of parts*

⁵ Adapted from a report from C. W. Fillmore, quoted in William James, *Proc. Am. Soc. Psychical Res.*, 1885-1889, 1:551-554.

⁶ E. Stoerring, as summarized in *Arch. Neurol. and Psychiat.*, 1933, 30:914. Cf. also PA 13 5208.

otherwise than through normal forgetting; more briefly, dissociation is abnormal disconnection of parts.

Connections so broken may be either native or acquired, though ordinarily they are acquired connections. The disconnection may be organic, that is, with neural tissue damage; or it may be functional, engendered by psychological processes, without tissue damage. In ordinary sleep, weakness, fatigue, boredom, emotional upset, abnormal suggestibility, and all psychoneuroses, the disconnection is functional. Whether organic or functional, the disconnection may be complete or partial, in that all or only some of the particular connections between the parts in question are disconnected. Also, the disconnection may be momentary or persistent. Furthermore, the disconnection may be reciprocal, A failing to connect with B, and B with A; or it may be non-reciprocal, A failing to connect with B, although B continues to connect with A. In all conditions far short of death, the disconnection is only or mainly of the higher connections.

Types of dissociation. The various instances of dissociation seem to reveal two principal types which we shall call general dissociation and special dissociation.⁷

In deep sleep, excessive emotion, intoxication, and some other states, the individual's connections (apart from those which keep him alive) seem to break up throughout; as a psychological being, he goes *all "to pieces,"* apparently breaking up into *elements* which thereupon cease to function. True, when we say in daily life a person has "gone to pieces," we mean not quite this general dissociation, because we can still recognize the pieces; yet such going to pieces may begin in some general dissociation from weakness, fatigue, or other cause, and may end in that relatively complete general dissociation called "terminal dementia." *General dissociation is general abnormal disconnection of functional elements.*

Often, on the other hand, the connections break up, not throughout, but between parts which retain something of their identity. Of the examples of dissociation given so far, all except sleep, general weakness, fatigue, boredom, emotional upset, and certain drug, toxic, and other disorders are examples primarily of special dissociation. In sleep, which occurs ideally as general dissociation, dreams illustrate special

⁷ Andras Angyal used the terms "molecular" and "molar" similarly, in J. S. Kasanin (ed.), *Language and Thought in Schizophrenia: Collected Papers*, 1944 (Univ. of California Press). Cf. also Janet's "molecular disaggregation," *L'Automatisme psychologique*, 1889, 452 (Alcan, Paris).

dissociation. Hallucinations and delusions in intoxication likewise illustrate special dissociation. "Mental compartments," epidemic patterns, and the more or less definite patterns that function within various mental disorders also illustrate special dissociation. *Special dissociation is abnormal disconnection between groups of functional elements.*

Possible basis of dissociation. Sollier, Prince, McDougall, and others suggested that dissociation is related closely to sleep. For Sollier and Prince, whatever the physiological basis of dissociation, it is the same as that of normal sleep, only localized according to the case; and it amounts to reduced functioning of the "highest association centers." For McDougall, the basis is the increased synaptic resistance that results from fatigue and other neurochemical conditions.⁸ In line with these suggestions, it seems well to assume that dissociation reduces somatically to *some physiological disturbance of connections.*

Dissociation and Inhibition

Some writers have thought that the phenomena which we ascribe to dissociation can be explained as phenomena of inhibition. Thus Pavlov, when he plied his experimental animals with extraordinarily inhibitory stimuli, observed that many of the animals seemed to lapse into sleep, or stupor, or possibly hypnosis; and he characterized all such states as "spread of inhibition."⁹ Several writers have suggested that what we call special dissociation reduces to mutually inhibitory patterns.

Evidently, some of the cases can be so interpreted. Other cases, however, seem to involve more than inhibition. For example, let us compare two subjects each of whom has "two sides to his personality." Both subjects are hypothetical yet typical, the one of some fairly well-integrated persons, and the other of some dissociated persons.

In Non-Utopia, the citizens are ruled both by a despotic government and by an authoritarian church; and often the two institutions work against each other. Thus, the government demands taxes, economic competition, hatred toward aliens, and belief that the government is right; while the church demands tithes, economic cooperation, love toward aliens, and belief that the church is right. Citizen One perceives the dilemma and reasons, according to his lights, that he must be a government man and a church man by turns. He does this so well that

⁸ References in W. S. Taylor, *Morton Prince and Abnormal Psychology*, 1928, 28 (Appleton); William McDougall, *Outline of Abnormal Psychology*, 1926, 106 (Scribner).

⁹ I. P. Pavlov, *Conditioned Reflexes*, 1927, 109, 250-275, 290 ff., 397 ff. Cf. also Helge Lundholm, *J. Abn. Psychol.*, 1928, 23:352.

his friends are often amused and speak of "the two great sides of his character." He knows his two sides, however; neither of them has forgotten the other; and he can draw upon both when he wishes to explain to his more trusted friends his philosophy of life, such as it is.¹⁰ His "sides" function smoothly in so far as one merely inhibits the other.

Citizen Two either fails to perceive the dilemma or is split by it. He develops a government side and a church side without realizing that they are two different sides of himself; neither side remembers the other; and apparently he cannot draw upon both for any broader perspective. The price of his peace of mind is dissociation.

True, as we saw in the previous chapter, very conflictful inhibition can cause dissociation. Conversely, also, dissociation can cause conflictful inhibition; as appears when a very weak, or fatigued, or bored, or emotionally upset, or suggestible, or mentally disordered person easily develops conflict. For example, as Pavlov grew old, he observed that he became less able to "do two things at once."¹¹ In a tired person, learned activities which normally are automatic require attention, and conflict with each other and with more intellectual processes. In the emotionally upset, suggestible, or mentally disordered person, intense conflicts are often obvious. Moreover, dissociation and conflictful inhibition may occur at the same time. Perhaps sleep and many other states of general dissociation always involve both dissociation and inhibition. Certainly in many specially dissociated cases, for example in Citizen Two, mutually incompatible patterns are so dissociated from each other that neither calls up the other normally, yet one, when dominant, inhibits the other. Nevertheless, it seems worth while to distinguish between abnormal disconnection, in which the parts in question abnormally fail to affect one another, and connection in which the parts check one another; and to call the abnormal disconnection "dissociation," and the checking, "inhibition."

General Dissociation

General dissociation, we have assumed, occurs in deep sleep, extreme emotion, various intoxications, and other conditions with like effects.

Causes of general dissociation. Such dissociation seems to come from excessive weakness, fatigue, conflict, emotion, suggestion, and various infections, drugs, and toxins, including endogenic toxins.

¹⁰ Cf. Henrik Ibsen, *Brand* (Herford, tr.), 1894, 205 (Heineman).

¹¹ *Op. cit.*, 406-407.

Thus dietary deficiencies can cause general dissociation; for example, the nervousness of many a child has been ascribed to deficient calcium metabolism. Oxygen deprivation is another cause; as is shown in aviation, mountaineering, and experiment.¹²

Conflict as a cause of general dissociation is most evident when the conflict gives rise to extreme confusion, or to extreme fear, with loss of consciousness.

Roback produced in his experimental subjects such mutually conflicting impulses to act that the subjects reacted more or less at random or not at all, and said afterwards that, for the time being, their minds had become almost blank. Hanfmann and Kasanin found that intelligent normal subjects, when sufficiently baffled by a sorting problem, reacted like subjects with schizophrenia and subjects with head injuries.¹³ Apparently any kind of conflict that is very intense can cause general dissociation.

Extreme emotion, a common result of conflict and of the dissociation that favors conflict, seems to cause dissociation in turn. Whether this dissociation is caused directly by endocrines, by fatigue from the conflict and emotion, or by some other physiological process is unknown.

Dembo's finding that anger established "a dynamic unity of the total field" such that the organism becomes "a more primitive, homogeneous, single tense whole"¹⁴ is doubtless true introspectively; but the well-known "single-track-mindedness" and other evidences of dissociation of the higher integrations in extreme anger, especially in fury, would seem to limit the objective unity in such emotion largely to lower processes combined with a few relevant associations.¹⁵

Suggestion as a cause of general dissociation will appear in the chapter on Suggestion.

Infections, notably "general paralysis" or paresis, often cause general dissociation, whether through structural injury, toxin, or other organic effect.

Alcohol and various drugs as causes of general dissociation are well known.¹⁶

¹² Cf. PA 7 1939, 8 3556, 7 3853, 11 1230.

¹³ A. A. Roback, *Psychol. Monog.*, 1918, 25:No. 5, 50, 93; PA 13 908.

¹⁴ Tamara Dembo, quoted by George W. Hartmann, *Gestalt Psychology*, 1935, 235 (Ronald).

¹⁵ Cf. PA 10 782.

¹⁶ Cf. McDougall, *op. cit.*, 67-76; Georgene H. and John P. Seward, *Arch. Psychol.*, 1936, No. 206, 5-12; PA 8 4423, 11 1647; Joshua Rosett, *The Mechanism of Thought, Imagery, and Hallucination*, 1939, 255-260 (Columbia Univ. Press).

Some glandular deficiencies cause general dissociation. Thus, the adult suffering from thyroid deficiency becomes forgetful, and unable to concentrate, decide, initiate, and carry out plans.¹⁷ Senility, another cause, may involve glandular deficiencies along with general structural deterioration. Illnesses, like typhoid fever or tuberculosis, engender toxic or other changes which effect general dissociation.

Infections that are localized, especially in teeth, tonsils, uterine cervix, or the alimentary tract, are called "focal infections." One psychiatrist, Cotton, claimed that all psychoses result primarily from focal infections. These infections, he argued, cause toxemia which disturbs the brain tissues, in some cases to the extent of visible lesions. In his view, even many glandular disorders, which some psychiatrists have supposed cause the psychoses, come from toxemia from focal infections. He admitted that some psychoses derive from hereditary and psychogenic factors; but he considered these factors merely precipitating and held that psychoses can come from the focal factors alone. He believed that removal of the basic infection cures the psychosis, provided the brain tissue has not become permanently affected. As proof for his view, Cotton reported that, when mental cases in the hospital he directed were treated for infections alone, without psychotherapy, within four years the cures increased from 37 to 80 per cent.¹⁸

This report startled psychiatrists and led to the contrary arguments that (1) inherited and psychogenic factors could be basic and infection could be the precipitating factor; (2) no control group was used to prove that these cures resulted directly from removal of infections; (3) many of the "infections" were doubtful; (4) the "cures" were not sufficiently verified; and (5) "under any circumstances," to quote Hollingworth, "one of the most important things from the psychological point of view is the *difference* between manic-depressive, dementia praecox, and paranoiac disturbances. The difference between patients who show one form and those who show another form of mental disorder is not accounted for on the basis of their focal infections."¹⁹ Thus Cotton seems to have made too much of the facts that a severe toxemia may so disturb brain functioning as to precipitate a psychosis,

¹⁷ R. G. Hoskins, *The Tides of Life: The Endocrine Glands and Bodily Adjustment*, 1933, 77 (Norton).

¹⁸ Henry A. Cotton, *Am. J. Psychiat.*, 1922, 2:157-194.

¹⁹ Nicholas Kopeloff and Clarence O. Cheney, *Am. J. Psychiat.*, 1922, 2:139-156; Kopeloff and George H. Kirby, *ibid.*, 1923, 3:149-197; Clarence O. Cheney, *ibid.*, 1922, 2:208; A. A. Brill, *ibid.*, 201; Ada F. Harris, *ibid.*, 202; H. L. Hollingworth, *Abnormal Psychology*, 1930, 105 (Ronald).

and that if the toxemia is cured soon enough the psychosis may disappear.

Various students feel that some internal toxins or other physiological disturbances are basic to schizophrenia (*dementia praecox*), manic-depressive psychosis, and perhaps paranoia.²⁰

The course of general dissociation. Jackson held that, ordinarily, when the nervous system breaks down, the highest, least automatized, functions give way first, while the lower and better-established functions hold out longest. If general dissociation really follows that course, if the course can be made out in some detail it should reveal the hierarchical organization of mental life and help to guide diagnosis and therapy.²¹

Upon turning to the extant data, however, it seems clear that no single formula describes the course of general dissociation for every case. Individuals differ in body chemistry, temperament, intellectual capacities, knowledge, and, as patients, in pathology. Different drugs and different toxic substances work differently. Some of these produce effects that resemble sleep, while others produce different effects. Observations of what we take to be general dissociation under these various conditions are relatively few and, in some respects, contradictory.²²

Perhaps sleep represents a particular course of general dissociation, or the complete course when not complicated by special factors. However that may be, Rosett suggested that going to sleep involves, most likely, the following order of changes: The static sense wanes. Vision weakens, then ceases even though the eyes remain open. The pressure sense, already blunted, goes next. Then hearing dulls and stops. Soon the muscle-sense disappears. The pain sense follows. Just when the remaining senses go out, relative to that series, is not clear. When the senses have gone, each of the functions, rational thought, imagery, and hallucination, successively, first becomes more active, then fades, as the

²⁰ For example, cf. Harriet Babcock, *Dementia Praecox: A Psychological Study*, 1933 (Science Press); and Helge Lundholm, *The Manic-Depressive Psychosis*, 1931 (Duke Univ. Press).

²¹ Cf. 43-44, above; F. C. Bartlett, in Eugene L. Hartley and others, *Outside Readings in Psychology*, 1950, 783-795 (Crowell), or PA 18 441.

²² McDougall, op. cit., 442-446; H. M. Hildreth, *Psychol. Bull.*, 1937, 34:523; Theodore Weisenburg and Katherine E. McBride, *Aphasia: A Clinical and Psychological Study*, 1935, 436 (Commonwealth); C. K. Trueblood, *Psychol. Bull.*, 1935, 32:735; Harry Marcellus Capps, *Arch. Psychol.*, 1939, No. 242, 60-61, 66; Rosett, op. cit., 174-178, 255-260; PA 2 3206, 8 5929, 9 5095, 13 4576, 14 4136, 4504, 15 2970, 3782, 18 438, 22 3366, 24 178.

individual loses touch with his present world. As he becomes unconscious, he moves somewhat more freely than while still thinking, imagining, or hallucinating; then his movements become disorganized, showing more tonus, increased tendon reflexes, and perhaps sudden extensor jerks, ankle clonus, and the Babinski reflex (a toe reflex noticeable in a baby when the sole of his foot is stimulated); and finally, his muscles relax and the reflexes disappear. When waking, substantially this order of changes is reversed; "in other words, the return of function begins from the muscular end of the nerve pathway and proceeds toward the afferent, the receptive, portion."²³

Epileptic attacks, according to Rosett, tend to follow a similar sequence of changes.²⁴

The decline of rational thought, noted by Rosett as occurring after sensory changes in sleep and epileptic attacks, certainly occurs in those states, also in fatigue, intoxication, cerebral injury, and other conditions which cause general dissociation.

Since to learn new ideas seems harder than to keep old ones, we should expect this decline of "rational thought" to begin with *educability*, the individual becoming less able to learn. This has been observed of the effects of alcohol and of general paresis in man, and of certain cerebral lesions in monkeys.²⁵

The first decline commonly reported, however, is in the *higher synthetic and analytic relations*: the individual loses the broader perspectives, more abstract categories, fruitful ideas, subtle associations, and discriminatory approaches that he had when "at his best": and consequently he becomes less able to think constructively, solve problems, make decisions, and see beyond the present.

The tired or stale person commonly "gets too close to his work," losing its wider significance, its social bearings, and the like, that inspired him when he was fresh.

²³ Op. cit., 246-247, 263-264. Cf. H. F. Harlow's criticism in Psychol. Bull., 1939, 36:702. Cf. also PA 10 980.

Aristotle remarked that imperception, which most obviously distinguishes sleep from the waking state, occurs also in suffocation, swooning, and certain cases of insanity. He concluded that sleep is therefore not an affection of any particular sense, but of the central or fundamental awareness which is most intimately connected with the sense of touch. (*De Somno*, Chapters I-III.)

²⁴ Op. cit., 171-181. In 1919, W. S. Taylor noticed somewhat the same sequence in himself when going under ether. Cf. also Charles Hughes Johnston, J. Abn. Psychol., 1909, 4:22-23, 29-30.

²⁵ Seward, loc. cit., 54, 57; Carney Landis and Joseph Rechetnick, Psychiat. Quar., 1934, 8:693-698; C. F. Jacobsen and H. W. Nissen, J. Comp. Psychol., 1937, 23:101-112. Cf. also PA 15 5222, 16 4851.

In a laboratory for research in chemistry, whenever any member of the staff found himself preoccupied more with washing test tubes than with using them, he would say, "I have it," and would put on his hat and leave the laboratory until "it" disappeared and his research perspective revived.

Many a person who is somewhat generally dissociated, notably by alcohol or by general paresis, begins to drink to excess, spend money rashly, keep disreputable company, and become flagrantly dishonest; his ethical and social perspectives give way.

With oxygen deprivation, self-criticism wanes, often dangerously; the subject's reactions become foolish, yet he remains confident that his mind is clear and his judgment sound. Similar failure of self-criticism with alcoholic intoxication is well known, particularly with regard to drinking more.^{21, 26}

A case of cerebral injury studied by Gelb and Goldstein could understand "The shoe is for the foot," also "The hat is for the head"; but could not understand "The shoe is to the foot as the hat is to the head." He could not tell why the head of a nail is called the head. He had to calculate " $5 + 4 - 4$ "; and after that problem was explained to him, he still had to calculate " $3 + 6 - 6$." He could not begin to count from 7; he had to start from 1.²⁷

Goldstein reported that such a patient could not copy a plain square; but he could copy a square that was bisected both vertically and horizontally, because to him it meant a window. Thus he was limited to the familiar and concrete.²⁸

One such patient could drink from a glass but could not mimic drinking with an empty glass; and he could drive a real nail but not an imaginary nail. He could not repeat the salient points of a story, or recall past happenings, unless they related concretely to his present situation. The imaginary and the abstractly remembered were beyond him; he was limited to the concrete present.²⁹

Everyone knows how easy it is, when emotionally involved with some present problem, to lose sight of various bearings of the problem. Thus, when a group of capitalists are discussing "the socialists," it is easy for them to forget that one of their number is married to a socialist.

Hanfmann, studying a cerebral-injury case, showed the patient one object and asked him to match it from among several objects presented simultaneously. The patient could not recognize the "match" if it were larger than the original, or had a spot on it that the original did not

²⁶ Cf. Ross A. McFarland, *J. Comp. Psychol.*, 1937, 23:196; PA 5 3751.

²⁷ A. Gelb, K. Goldstein, and W. Siekmann, *Psychol. Forsch.*, 1932, 16:201 ff.

²⁸ A lecture at Smith College, January 7, 1938.

²⁹ Gelb, Goldstein, and Siekmann, *loc. cit.*

have. Also, he could not well fit the blocks of a form board into their holes, evidently because he saw blocks as different from holes. For him, a "match" or a "fit" was a concrete duplicate, not an abstract relation. Once this subject did pair, hesitantly, a pencil with a clay pipe from which the paint rubbed off, because he could write with both. Thus he seemed to retain some relatively concrete categories, or, more likely, habits of use.

He could not match any two objects unless both were present to sense; and then he used fortuitous clues, not categories.

He could choose "the longest" of two strips of paper, but not of four or five strips, that lay before him.³⁰

Hanfmann and Kasanin presented a group of blocks to schizophrenic, parietic, senile, and normal subjects, respectively, and asked the subjects to sort the blocks into three classes, re-sorting if necessary until the classes were worked out. Most of the schizophrenic subjects, and all of the parietic and the senile ones, were much less able than the normal subjects to discover the classification.³¹

Goldstein pointed out that cerebral-injury cases become unable to distinguish the details of a picture which is still recognized as a whole, apparently because these details amount to abstractions.³²

Cerebral-injury patients commonly *seem* devoted to order, form, system, as such. The patients are neat and punctual. When asked to put a pencil on the table, they lay it parallel to the paper. They are often helpful about the ward, especially in making it tidy. According to the evidence, however, these patients are not devoted to any abstract principle of order or social good, but only to simplifying their own immediate environment.³³

Naturally, such subjects cannot understand jokes.³³

Shipley and Burlingame developed a self-administering scale for measuring impairment of abstract thinking.³⁴

After the higher synthetic and analytic relations have become dissociated, the *ordinary memories and meanings* may go. This appears particularly in perception; that is, in the immediate interpretation of sensation.

³⁰ Eugenia Hanfmann, Maria Rickers-Ovsiankina, and Kurt Goldstein, *Psychol. Monog.*, 1944, 57:No. 4, 16-19.

³¹ Cf. PA 16 2289, also 11 5549, 12 5302, 14 4102.

³² Kurt Goldstein, *The Organism: A Holistic Approach to Biology, Derived from Pathological Data in Man*, 1939, 31 (American Book).

³³ Goldstein, lecture cited; Gelb, Goldstein, and W. Hochheimer, *Psychol. Forsch.*, 1932, 16:1 ff.; Gelb, Goldstein, and Siekmann, loc. cit.

³⁴ Cf. PA 16 1719.

Such failure in perception is not always noticed, because the subject may continue to use things as though he knew just what they were. As Gelb and his co-workers observed, it was only when the subject was asked what an object was that it became a problem for him. Hanfmann's subject seemed able to recognize colors, usually, in terms of only four categories which could be called the whites, the blacks, the "warm" colors, and the "cold" colors. When first confronted with his own image in a mirror, he talked to it, swore at it for its failure to respond, suspected the working of the devil in it, and frantically searched behind the mirror and behind the wall for the mysterious apparition. While he was thus excited and bewildered, one of the observers put a comb in his hand and asked him about its function. The patient immediately started to comb his hair and in doing so turned to the mirror and used it in a matter-of-fact way. This subject seemed to recognize any object mainly by what he could do with it at the time. Often he would find this out by manipulating the object until he hit upon its use; for example, if the object were a pencil, by handling it until he found himself writing with it.³⁵

That dissociation in perception begins with the object's higher synthetic and analytic relations, and works down into their more familiar and easily grasped relations, is suggested by Hanfmann's remark that her subject could recognize individual people less easily than he could recognize their facial expressions and vocal tones. Moore observed, indeed, that some pathological subjects cannot arrange pictures in a logical series, but can interpret single pictures; some cannot interpret a whole picture, but can interpret the parts (likely, so far as the accounts show, more concrete parts than the details which Goldstein's patients could not distinguish); some cannot interpret even a particular object, yet can "configure" its sensory qualities; and some cannot so configure the sensory qualities, yet can describe those qualities one by one.^{36, 36}

The decline of higher synthetic and analytic relations, and of ordinary memories and meanings, favors hallucinations and delusions; much as going to sleep favors the hallucinations and delusions which are hypnagogic phenomena and dreams.

With the same decline, attention becomes less dependable; the individual cannot concentrate, shift, and focus his attention as he could

³⁵ Gelb, Goldstein, and Siekmann, loc. cit.; Hanfmann and others, loc. cit.

³⁶ Cf. Thomas V. Moore, *Psychol. Rev.*, 1938, 45:220-221. Harlow and Settlage found that freezing the visual cortex of rhesus monkeys inactivated their discriminations of color and form longer than their simpler visual reactions (*J. Psychol.*, 1936, 2:200). Cf. also PA 8 423.

when his mental state was normal. Correspondingly, his volition weakens; he becomes less able to decide upon and to persist in any high activity.³⁷

Meanwhile, language, speech and behavior deteriorate, starting again with the higher and finer coordinations.

One observer wrote: "I descended on the same day two very deep mines in the Hartz Mountains, remaining some hours underground in each. While in the second mine, and exhausted both from fatigue and inanition, I felt the utter impossibility of talking longer with the German inspector who accompanied me. Every German word and phrase deserted my recollection; and it was not until I had taken food and wine, and been some time at rest, that I regained them again."³⁸

The tired person often fails to call up the right word, and uses such rough approximations as *cutter* for *mower*, *table* for *desk*, and *what-do-you-call-it* for many a familiar object or process; perhaps because he does not recall exactly the category which he should name.

Aphasic patients cannot name objects well, according to Goldstein, because they "have lost the categorical behavior and are reduced to a more concrete level of behavior."³⁹

Such patients usually address the doctor, and even their relatives, in stereotyped phrases.³⁸

The psychological subject does poorly on tests of sentence usage, of synonyms and antonyms, and of other relations between words.

He forgets many words. As Ribot remarked, before the modern studies of aphasia physicians noticed that patients forget proper names before substantives, and substantives before the verbs, adjectives, and other parts of speech that are more generally used. The subject may recognize, however, or reject if wrong, suggested words for which he has been groping. The last words to go, Lashley noticed, are "ejaculations, profanity, words of affirmation or negation, and words having a deep personal significance."⁴⁰

The sleepy subject often loses the "edges" of his words sufficiently to make unconscious puns. This occurs especially in dreams. Rosett, after reading Francis Parkman's history of the Jesuits in North America,

³⁷ Cf. McFarland, loc. cit., 202-203; PA 11 5549, 14 4102; and Goldstein, *The Organism*, 44.

³⁸ H. Holland, as quoted in Th. Ribot, *Diseases of Memory*, 1882, 144 (Appleton).

³⁹ Kurt Goldstein, J. Psychol., 1936, 2:315. Cf. also *ibid.*, 302-309.

⁴⁰ Harry Marcellus Capps, Arch. Psychol., 1939, No. 242, 59, 60, 65 (though Capps does not think his data, which are on epileptics, support Jackson's view); PA 14 4288; Ribot, op. cit., 166, 119; Gelb, Goldstein, and Hochheimer, loc. cit.; K. S. Lashley, Psychol. Rev., 1930, 37:19.

was impressed by the Indians' incessant banter. Not long afterwards he dreamed that he was among those Indians. To make sure, in his dream, that they were the same Indians, he said to himself, "I must look for the banner." At once he saw a banner standing against the wall. In trying to explain why it was there, he awoke; and realized that what he had wanted to find was the Indians' *banter*. "But the word *banter* is a relatively late acquisition and it largely dropped out in that stage of sleep. All that was left of it was its phonetic quality, which was similar to that of an earlier acquired word—*banner*."⁴¹

After all control of language has gone, as in certain parietic cases, the patient may continue to talk, using words and perhaps phrases, incoherently. At a still later stage he merely babbles.

Behavior runs through a similar course. In general, the higher coordinations and the more analytic responses fall out first. Such complicated behavior as remains becomes routinized as much as possible, and any break in the routine is upsetting. One of Gelb and Goldstein's patients, when told to take a walk twice daily, did so, always the same way, detours being impossible for him; though if his attention was caught, he stopped. He was much upset when asked to stay seated at breakfast instead of rising at his usual time. He was unable to smoke when doing anything else.⁴²

Perseveration, failure to shift activities intelligently, is marked in such patients; even nystagmus lasts longer in lobectomized, cortectomized, or alcoholized individuals.⁴³

As "transcortical inhibition" declines, abnormal motility may result.⁴⁴

The most common skeletal-muscular coordinations, such as avoiding obstacles in the path, walking, standing, sitting, and turning over in bed, disappear last in that series.

The epileptic attack and the metrazol seizure, also, apparently, muscular discoordination from lack of oxygen, go through the continuous stages (1) alternating movements, (2) rigidity, and (3) interrupted rigidity. These stages would seem to accord with neural evolution.⁴⁵

In the total course of general dissociation, we should like to know where laughter, crying, emergency emotions, and other reactions discussed previously⁴⁶ fall. On the whole, *affect*, though often inhibited,

⁴¹ Rosett, *op. cit.*, 248.

⁴² Rosett, *op. cit.*, 176 ff.; Goldstein, *The Organism*, 31; E. H. Rodnick, *Psychol. Bull.*, 1940, 37:440-441; Gelb, Goldstein, and Hochheimer, *loc. cit.*

⁴³ G. R. Wendt, a lecture, October 27, 1939.

⁴⁴ S. A. Kinnier Wilson, *Modern Problems in Neurology*, 1928, 232 (E. Arnold).

⁴⁵ Hans Strauss, Carney Landis, and William A. Hunt, *J. Nerv. Ment. Dis.*, 1939, 90:439-452; McFarland, *loc. cit.*, 220; Rosett, *op. cit.*, 175, 178, 179.

⁴⁶ Chapter 7.

seems almost the last process to be dissociated. Indeed, perhaps affect is never dissociated, but only inhibited, so long as the organism lives; though apparently the peripheral factors normal to affect may become dissociated from the essential central processes.⁴⁷

Finally, *consciousness* may disappear. The subject then lies asleep or in a stupor. His lower, physiological processes, however—his respiration, circulation, and the like—continue longer. If it were not so, as Jackson remarked, there would be more deaths from alcohol.

Special Dissociation

Special dissociation appears in dreams and divers other patterns which function more or less beyond the individual's control. What seem to be the causes and course of this type of dissociation?

Causes of special dissociation. The causes seem to include some general dissociation; structural injuries; special drug and toxic effects; natively weak connections; disproportionate learning; some forgetting; preoccupation; suggestion; and conflict, including repression. These several causes seem to apply as follows.

Some general dissociation, by disconnecting many functional elements, predisposes to dissociation between groups of functional elements; in other words, to special dissociation. Thus, in schizophrenia, according to Levin, delusions and hallucinations are often striking, yet "are only accessory symptoms. The basic difficulty in schizophrenia is the inefficiency of the instrument through which ideas are associated and satisfactory affective relations with the outer world maintained."⁴⁸

Structural injuries, from blows, infections, or other causes, though likely to produce general dissociation, as in the cerebral injury cases previously discussed, seem no less likely to produce special dissociation. The special dissociation may be either direct, where the injury is, or indirect, through releasing groups of elements from central inhibition and integration.

As Child observed of simpler organisms: "If the activity of the dominant region decreases, the range and effectiveness of control decreases and parts of the individual may become sufficiently isolated, even without growth, to give rise to new individuals. If the original dominance disappears completely, the organism may separate into its

⁴⁷ Wilson, *op. cit.*, 275-276.

⁴⁸ Adapted from Max Levin, *Am. J. Psychiat.*, 1931, 11:234.

constituent cells, and each of these may begin a new course of development."⁴⁹

Mettler and Culler reported that removal of an animal's cortex makes the animal abnormally susceptible to drugs, even to drugs which affect the peripheral autonomic system.⁵⁰

Special drug and toxic effects are illustrated by the findings that curare can dissociate a dog temporarily "into two distinct behavior-systems" that resemble human multiple personality.⁵¹

Natively weak connections must predispose to special dissociation at those points. Various writers, as we have seen, assume that higher connections are natively weaker than lower connections. Some think that the connections between the two cerebral hemispheres are especially weak. Wigan, before 1850, maintained that each hemisphere "is a distinct and perfect whole, as an organ of thought"; that normally one of these hemispheres dominates the other; and that various abnormalities result from discoordination, more or less independent activity, and mutual interference of the hemispheres.⁵²

While many of the cases cited in behalf of such cerebral duality may be interpreted as functional dissociation of systems that overlap both hemispheres, phenomena of allochiria and of allokinesia, to which we shall return, and recent discussions of cerebral dominance in reading, writing, and other activities suggest that cerebral duality may be a factor in some special dissociations.⁵³

Disproportionate learning, learning which leaves some connections much stronger than others, leaves the weaker connections liable to special dissociation. For example, if a person associates strongly A with B, and C with D, but not A or B with C or D, special dissociation is more likely to occur between the A-B group and the C-D group than between A and B or between C and D.

High integration requires learning; and some individuals, through not having had to maintain such integration, learn it so slightly that it easily breaks down. Thus, an adolescent who has had little

⁴⁹ Adapted from C. M. Child, *Publ. Am. Sociol. Soc.*, 1927, 22:34.

⁵⁰ Cf. Fred A. Mettler and Elmer Culler, *J. Pharmacol. and Exper. Therap.*, 1934, 52:377.

⁵¹ Cf. PA 13 4576.

⁵² A. L. Wigan, *The Duality of the Mind Proved by the Structure, Functions, and Diseases of the Brain, and by the Phenomena of Mental Derangement, and Shewn to be Essential to Moral Responsibility*, 1844, 26 (Longmans).

⁵³ Cf. Herbert H. Jasper and Edward T. Raney, *Psychol. Bull.*, 1937, 34:151-165; D. B. Lindsley, *ibid.*, 768.

practice in integrating his egoistic with his altruistic interests is likely, when weakened or under stress, to break along the line between these groups of interests.⁵⁴

Although, according to all the evidence, some general dissociation retards learning in general, any learning which is accomplished despite such dissociation is likely to be disproportionately strong. Thus, if A, B, C, and D have been equally associated, and then become about equally dissociated, forcing the A-B association to function strongly may weld it into an A-B couple liable to function more or less by itself.

Moreover, given any dissociation of inhibitory patterns, patterns hitherto repressed are likely to function and to become so strong that they persist as patterns which will not down. To use the same example: If the individual is so motivated that A and B tend to function apart from C and D, but C and D have kept them from doing so hitherto; when, for any reason, C and D are dissociated from A and B, A and B may function and become a relatively uncontrollable A-B pattern thereafter.

In general weakness and in fatigue, many an untoward pattern has been impressed or released as a definite psychoneurosis.⁵⁵

General dissociation from conflict or from emergency emotion often sets the stage for disproportionate learning. An individual who is "pulled every way," or is "tremendously upset" or frightened, is likely to be overimpressed by whatever does impress him, even by some idea he has, at that moment.⁵⁶

If general dissociation resulting from suggestion did not make for disproportionate learning, hypnosis would not be so effective as it is; for hypnosis, as we shall consider it, is a suggested state, commonly embodying both some general and special dissociation, which can be either abused to practice undesirable associations, or used, even analytically, to practice desirable associations that the individual needs for his daily life. Thus repressed patterns frequently come to the fore in hypnosis, and many such patterns have been reintegrated through hypnosis.

In sleep, dreams are sometimes so impressive, doubtless from antecedent causes, that the patterns dreamed function subsequently as obsessions.⁵⁷

⁵⁴ Cf. Morton Prince, *Dissociation*, 1905 (Longmans), and other cases of multiple personality; also Donald E. Core, *Functional Nervous Disorders: Their Classification and Treatment*, 1922, 165 ff. (Wood).

⁵⁵ Cf. Taylor, *Readings*, 707.

⁵⁶ *Ibid.*, 699, 709, 732; William Ellery Leonard, *The Locomotive-God*, 1927, 10 ff., 238, 279, 280, 299 ff., 365, 396, 406 (Century).

⁵⁷ Cf. Taylor, *Readings*, 592 ff.

A girl who was half chloroformed for a trifling operation underwent the operation satisfactorily. Throughout the partial anesthesia, young students at the hospital kept joking the girl and making her laugh. The laughter persisted afterwards as a tic.⁵⁸

"Some persons who have been anesthetized suffer for weeks or months afterwards with distressing dreams of inhaling the anesthetic.

"That anesthetics often 'release' submerged conflicting or psychoneurotic patterns, for the time being at least, is well known."⁵⁹

"According to Babinski, in certain stages of chloroform anesthesia, unsuspected conditions of the nervous system can be brought out. Although it has been thought that anesthesia ought in general to reduce the reflexes, and this is in general true, there is a phase whilst going under and coming out of chloroform in which the reflexes may come out in excess. Let us suppose a patient whose knee jerks are perfectly equal in the waking life; let him be chloroformed, and one of the knee jerks early in the anesthetization becomes very much exaggerated or even polykinetic. How is this to be explained?

"Monier-Vinard had to do with certain cases of tetanus, the victims of which had apparently entirely recovered after some weeks. For certain reasons, it became desirable to operate upon these men for orthopedic defects. To the astonishment of the observer, under chloroform these men redeveloped tetanus and showed a degree of rigidity in anesthesia which was highly alarming. Upon removal of chloroform these rigidities disappeared, only to reappear upon further chloroforming. The only hypothesis ready to hand is that, although these cases were clinically cured of their tetanus, there was within their nervous systems a tendency to hypertonus. This tendency had been counteracted, no doubt, by the normal downstream of inhibitory influences from the cerebrum, and this normal downstream was interfered with by the chloroform. Let us suppose alcohol to work upon a man with certain inhibited tendencies (tendencies which Freudians might like to call repressed); the alcohol might release these tendencies precisely like the tetanus and the exaggerated knee jerk under chloroform."⁶⁰

Not a few psychoneuroses have crystallized when their victims were more or less intoxicated by alcohol.

A man who became afraid to go more than about a half-mile from his home developed this pattern, finally, when he had been drinking some beer.⁶¹

⁵⁸ Abstracted from Pierre Janet, *The Major Symptoms of Hysteria*, 1920, 261 (Macmillan).

⁵⁹ Anonymous, *Lancet*, 1928, 214:1133.

⁶⁰ Adapted from E. E. Southard, *Psychol. Bull.*, 1919, 16:195-196.

⁶¹ Leonard, *op. cit.*, 299.

A subject cited previously had his homosexuality "come out" when drinking with friends.⁶²

A medical student, though at the head of his class, became nervous about his work. He was able to control this attitude, however, through rational thought; until one evening, while he was drinking with some other students, the nervousness "got him," and he was left with an anxiety neurosis marked by trembling, rapid pulse, poor digestion, and poor sleep, which forced him to go home. A psychiatrist diagnosed the trouble as some obscure endocrine disbalance and prescribed a vacation in the woods. The student disregarded this counsel and went back to the medical school, determined to work. After a few days he had to give it up and went home again. This time he found another therapist who suggested that he had developed a nervous habit; and that he could change the habit if he would limit his work, including classes and study, to seven hours a day, avoid fatigue, emotional upsets, and alcohol, and practice certain techniques of psychotherapy. After a few days of rest and reflection upon this regimen, the young man entered upon it systematically and returned to his studies.

As his final examinations approached, however, he began to work overtime. His nervousness threatening to return, some friends persuaded him that all that he needed was a little drinking party to freshen him for his work. This partly definitely re-established the nervousness, and he broke down again. This time a more extensive psychological campaign was required, but, within a couple of weeks, it succeeded, and he was able to finish his work and to enter upon a professional career.

W. Whately Smith gave word-association tests to slightly intoxicated subjects and to normal subjects. He found that the intoxicated subjects were slightly more inert in general, yet personally freighted words brought out more delayed responses, erratic replies, and other "complex indicators."⁶³

Some forgetting predisposes to special dissociation through weakening particular connections. If, for example, a subject associates A, B, C and D with one another about equally, and thereafter practices only the connections between A and B on the one hand and between C and D on the other, the connections between the A-B group and the C-D group may so lapse through forgetting that A-B can easily break away from C-D through special dissociation. Thus failure to practice integration favors dissociation.

⁶² Cf. 105-106, above.

⁶³ W. Whately Smith, *The Measurement of Emotion*, 1922, 113 circa (Harcourt).

Men who spend much time in solitary confinement are especially liable to "prison psychoses."⁶⁴ Some men who tend sheep for long periods alone are said to develop "shepherd's insanity," which is marked by hallucinations and delusions, particularly of having companions. In all such cases, it seems that habitual realistic associations weaken through forgetting, while incompatible, wishful associations develop unchecked, and then function through special dissociation.

Preoccupation, great absorption, is another cause of special dissociation; though likely not a separate cause, since distinctions between preoccupation, on the one hand, and special dissociation, general dissociation, and conflictful inhibition, on the other, are not clear. We know, however, that some individuals do automatic writing when consciously absorbed in some fascinating topic, while other individuals do it when "abstracted"—which may mean absorption in something else.⁶⁵ Also, preoccupation seems essential to hypnosis and lesser states of suggestibility which we take to involve special dissociation.

After what has been said in the preceding chapter, *conflict, including repression*, need only be mentioned as a most important cause of special dissociation. Examples are plentiful.⁶⁶

All these causes of special dissociation may occur within a single case, particularly if that case be extreme; for example, in multiple personality.⁶⁷

Among the various causes, of course, some may work against one another. Thus, disproportionate learning of A-B may be offset by preoccupation with B-C so that A remains integrated with C. Normally, too, these various causes of special dissociation are offset by the various causes of integration; otherwise good integration would be rarer than it is.

The course of special dissociation. Special dissociation, of the functional sort, is so often combined with repression that we are not clear about the course of such dissociation. It seems likely, however, that

⁶⁴ Cf. PA 4 2389.

⁶⁵ Cf. Taylor, *Readings*, 406, 454.

⁶⁶ Cf. Prince, *Dissociation*, 172, 178, *Clinical and Experimental Studies*, 1929, 64, 242, or 1939, 115, 305 (*Sci-Art*); P. Harry Ewert, *Genet. Psychol. Monog.*, 1930, 7:177-363; Cornelius C. Wholey, *Am. J. Psychiat.*, 1933, 12:opp. 686-687; Index and Glossary, below.

That conflict is not the only cause of special dissociation appears in Charles S. Myers, *Shell Shock in France 1914-1918*, 1940 (Cambridge Univ. Press).

⁶⁷ Cf. Morton Prince, *The Unconscious*, 1921, 545-633 (Macmillan), or *Clinical and Experimental Studies*, 1929, 209-254; also Taylor, *Readings*, 463-472.

it begins with the highest synthetic and analytic relations that bear upon the connection to be dissociated.

Affective Unity

In the course of general dissociation, we noticed, one of the last processes to be dissociated is affect; if, indeed, affect ever can be generally dissociated in the living organism. Perhaps this explains why an affect that is aroused anywhere in a person who is not very deeply dissociated *pervades all of him* for so long as that affect lasts. When a new affect develops, *it* pervades all of him. In other words, at any given moment, whether or not such a person loses his higher unity, he retains his affective unity.

This point appeared strikingly in "Joe," a twenty-one-year-old schizophrenic patient in a mental hospital.

Joe was the youngest of his family. From his infancy, he and his mother were devoted to each other. She taught him to love religion, music, and esthetic dancing, and to hate anything sexual. When he was twelve years old, his mother died. He felt lost. He tried to keep in touch with her through religious rites, prayer, and memories; and as time went on he practiced religion, music, and dancing as she had wished. He became a member of a troupe, and spent several seasons on the stage. Here he was unsociable but happy, except that he missed his mother and seemed unable to keep sex out of his personality. Between seasons, he worked in a store. As this was less interesting, sexual impulses seemed to beset him more than ever. Girls disturbed him so much that he walked to and from the store by a lonely path where he saw many flowers. When some one told him that flowers reproduce sexually, he abandoned that path and found another through a dump, where he saw neither girls nor flowers. Finally, he became so shy, familiar with special gods, and violent against supposed persecutors that he was brought to the hospital.

At the hospital, he could not say the word "sex" without setting his teeth, retracting his lips, and shutting his eyes, as in pain. He confessed that he had masturbated at intervals, and he believed that therefore he was ruined. He said that a god, "Eflow," and a goddess, "Tunis," stayed with him much of the time. Of late he was disturbed by pigs, large and small, which he had seen running about his ward, jumping on the beds, and even crawling into the beds; and he wondered where these pigs came from. Through talking with him, Harold G. Wolff learned the apparent sources of his ideas about sex, but not of Eflow, Tunis, and the

pigs. Through hypnosis, W. S. Taylor confirmed Wolff's findings, but failed likewise to learn about the gods and the pigs. E. H. Ehrenclou then suggested that automatic writing might be useful.

Accordingly, Ehrenclou, who was "a good friend" of Joe's, sat face to face with him, asked him about his life on the stage, and kept him talking about it for an hour. Taylor sat behind Joe's right shoulder. He slipped a pencil into his hand, set the pencil on a sheet of paper, and pushed the pencil at intervals to start some writing. Meanwhile, he whispered into Joe's ear: "Write! Write! Write your name! Write it again! Now write the answer to this: Who is Eflow, really? Where did he come from? Write it! Write who he is, write where he came from! Write it now! . . . Is that all about Eflow? . . . I see. Now write what pigs mean. What do they mean? Write it, write it, write all about it! Pigs! . . . Good. *Why* do they mean that?" Joe wrote, at first reluctantly, and often angrily or disgustedly. As the hour went on, however, he wrote more and more freely, and revealed the highly charged experiential sources of Eflow, Tunis, and the pigs. (In brief, "Eflow" stood for Joe's physician, Dr. Wolff—through reversing the spelling, which Joe took to be "Wolfe." "Tunis" was his mother, from special associations, among them the "two" and "nine" of her dates of birth and death. The pigs, again from special associations, meant sex.)

At the end, Ehrenclou and Taylor dropped their special roles and showed Joe what he had written. He was astonished. They asked him if what he had written was true. "Yes!" he retorted. "It's true; but I never would have written it if I had known what I was writing!" Since "he" had not known what "he" was writing, it seemed clear that during that hour, at least, Joe was split into two personalities, one which Ehrenclou aroused to talk, and one which Taylor aroused to write. We shall call these two the talking Joe and the writing Joe respectively.

Both personalities answered to the name of Joe, and both were opposed to examining the gods and the pigs. They were so opposed, however, in different ways. The talking Joe believed that the gods came from heaven; he did not know where the pigs came from; and he felt that questions about either were futile. The writing Joe, on the other hand, found those questions offensive. Evidently the questions came closer to the writing Joe than to his talking fellow. Nevertheless, while the two personalities reacted differently to the same things, *any emotion developed within one personality appeared simultaneously in both.*

Thus, during the automatic writing, when Taylor whispered questions about the gods, Joe fidgeted, grew red, and kept turning his ear away until he was facing to the left, though looking to the right at Ehrenclou, with Taylor pursuing the ear until he was between it and

Ehrenclou. Now Joe wrote tensely and angrily. Often he seemed about to break the pencil; he pushed the letters into the paper; he wrote large, and underlined what he wrote, and he threw the pencil down contemptuously—only to have it slipped into his hand again as the questions were continued. At the same time his reactions to Ehrenclou became tense. When Taylor asked about the pigs, Joe became furious. He gritted his teeth, clenched his fists, and trembled. At the same time, his replies to Ehrenclou's innocuous questions sounded so angry that, evidently to excuse the emotion, he swung his left fist past the tip of Ehrenclou's nose and shouted "jocularly," "Confound you, Doctor, what business have you to ask me all these questions? You make me feel like a fool!"

In other cases, fears, subconsciously aroused, well up into consciousness. For example, a person with no conscious idea of danger suddenly suffers from checked breathing, cold skin, shaking knees, and dry mouth, and realizes that he is unaccountably panic-stricken. Upon analysis later, it turns out that the fear was released subconsciously by an item that had been associated with fear, whether consciously, and then repressed, or subconsciously. Sadness and grief from subconscious psychogenic sources pervade consciousness likewise. Without knowing why, one subject feels sad daily at four o'clock; another grieves whenever he sees a brook. In some of these cases, the emotion is accompanied by automatic crying quite incompatibly with conscious thoughts. In some people, a dream with a strong affect, whether pleasant or not, persists or recurs subconsciously during the day, and suffuses the waking consciousness with that affect.⁶⁸

The affect which pervades the individual may be simple or complex, and may derive from thoughts or other reactions which are simple or complex. The point is that the individual may be able to repress or compartment the thoughts and other reactions, but not the affect. Perhaps he can inhibit the affect by arousing a different one, or by becoming preoccupied with other reactions; but apparently he cannot have, for example, subconsciously aroused anger and clear, conscious love at the same time.

Well-developed cases of multiple personality in which two or more personalities are active at the same time do seem to split beyond affective unity, introspectively at least.⁶⁹

⁶⁸ Examples occur in the writings of Janet; Prince, *Clinical and Experimental Studies*, 1929, 162, *Dissociation*, and *The Unconscious*, passim; etc.

On affective unity, cf. Prince, *The Unconscious*, 364, 485, and passim; C. E. Cory, *J. Abn. Psychol.*, 1919, 14:287.

⁶⁹ Cf. Prince, *The Unconscious*, 612-613.

Sleep

"Sleep," said Macnish, "is the intermediate state between wakefulness and death: wakefulness being regarded as the active state of all the animal and intellectual functions, and death as their total suspension."⁷⁰ Sleep interests us so far as it relates to inhibition, dissociation, dreams, and other processes integral to our field. Here we shall consider theories of sleep, the course of sleep, relaxation and movements during sleep, attentive sets likewise, certain abnormalities, and the function of sleep.

Theories of sleep. *Circulatory theories* ascribe sleep to a decreased or increased blood supply to the brain; *biochemical theories*, to fatigue toxins, or exhaustion of energy reserves, or both; *neuroanatomical theories*, to functional changes in the brain; *histological theories*, to functional changes in the neurons; and *psychological theories*, to instinct, muscular relaxation, decreased afferent excitation, increased inhibition, general dissociation, or habit.

Sleep has been induced by circulatory changes in the brain, by transfusion of blood or spinal serum from a fatigued animal, by muscular relaxation, by decreased stimulation, by conflictful inhibition, by suggestion inducing (we assume) considerable general dissociation, and by habit. Since, however, sleep is often prevented despite one or more such changes, and the changes are variously interrelated, it would seem that a complete theory of sleep will not be limited to any one of these factors.

The course of sleep. A person passes from wakefulness into sleep through a more or less marked hypnagogia characterized, as we have seen, by muscular starts, odd ideas, hallucinations, and little dreams. Sleep itself, judging by various tests, varies in depth. On the whole, experimental studies suggest that a normal night's sleep is deepest during the first or second hour and becomes less deep each hour thereafter, except perhaps for another low point during the fifth or sixth hour. There are individual differences, however; and according to one study the depth of sleep depends less upon the hour than upon the subject's movements—sleep deepens gradually after each movement,

⁷⁰ Robert Macnish, *The Philosophy of Sleep*, 1834, 9 (Appleton).

then tends to become less deep as another movement approaches. Still, these movements are fewest during the first couple of hours.⁷¹

Relaxation and movements during sleep. That relaxation and sleep tend to go together everyone knows and has been demonstrated experimentally.⁷² The relaxation is not complete, however; and Johnson reports that a healthy adult usually changes his position 20 to 45 or even 60 times in a night. Children change their sleeping positions more often.⁷³

Attentive sets in sleep. Not all who sleep are "dead to the world" or to the same things in the world. When the telephone rings, the doctor awakens, while his wife sleeps on; but when the baby cries, the wife awakens, and the doctor sleeps on. A nurse may awaken when her patient stirs only slightly. In every such case, the person seems to have developed an attentive set through which he responds readily to particular excitations.

Probably dependent upon such a set is voluntary waking at a given time; the possible excitations for the waking including subconsciously heard clocks, whistles, milk trucks, and various internal conditions. Whatever the explanation, Omwake found among 27 college women great individual differences in such waking. "There is a close relation between ability to wake within 30 minutes of the specified hour and ability to guess the time within 30 minutes of the actual time." "The best third of the subjects, if they woke at all, did so within 30 minutes of the hour set 66% of the time, within 15 minutes 43% of the time, and within 5 minutes 21% of the time." Accuracy increased toward morning. Incidentally, an earlier study indicated that "attempting to wake at a set time disturbs sleep."⁷⁴

Evidently related to attentive sets are many instances of dreams, talking, walking, writing, and solving problems during sleep. To these phenomena we shall return at various points.

Abnormalities of sleep. *Insomnia* may have many causes, organic or functional or both, including subconscious conflicts, everyday prob-

⁷¹ PA 12 700, etc.

⁷² E.g., Isador H. Coriat, *Abnormal Psychology*, 1914, 115 (Moffat); Edmund Jacobson, *You Must Relax*, 1934, 166-167 (McGraw-Hill).

⁷³ H. M. Johnson, in *Readings in Experimental Psychology* (Willard Lee Valentine, ed.), 1931, 262 (Harper); PA 13 2759. For pathological variations, cf. PA 10 2939, 13 4708.

⁷⁴ Katharine T. Omwake, *Psychol. Bull.*, 1938, 35:508; Omwake and Margaret Loran, *J. Appl. Psychol.*, 1933, 17:474.

lems, and habits.⁷⁵ Judging by experimental studies, a little insomnia does less harm than worry about it may do, although prolonged insomnia is injurious.⁷⁶ Treatment consists in establishing good external, physiological, and psychological conditions according to the individual case. *Protracted sleep* results likewise from various organic and functional causes, as do *attacks of sleep* (hypnolepsy and narcolepsy). Some of these phenomena we shall consider later.

The function of sleep. Some psychoanalysts interpret sleep as a release for repressed wishes and an escape from reality. Repressed wishes are often released in sleep, and sleep is sometimes used for "escape"; but to interpret all sleep in such terms seems to lose biological and psychological perspective. Biologically, sleep is rest; and psychologically, while release of repressions, wishful dreams, problem solving, and other processes often enter, sleep is primarily rest. It does not seem necessary to resort to psychoanalytic mechanisms to explain Barry and Bousfield's findings that undergraduate women reported more euphoria, also an average of almost an hour more of sleep, than did undergraduate men; that the men who slept eight or more hours reported more euphoria than did those who slept six hours or less; and that more euphoria follows upon good sleep than upon poor sleep.⁷⁷

Of course sleep is not the only cause of euphoria. Bousfield noticed also "a positive relation between euphoria and the number of hours of exercise during the previous 24 hours."⁷⁸

Further References

The concept of dissociation: PA 1 2006 (the date is 1926), 8 381.

Examples: John Galsworthy, *Captures*, 1923, 105-124 (Scribner); Charles T. Burnett, *Psychol. Monog.*, 1925, 34:No. 2; Pierre Janet, *J. de psychol.*, 1925, 22:369-420; PA 4 4834, 13 4323.

Causes: PA 14 2560.

The course of dissociation: Taylor, *Readings*, 188-189; PA 3 990.

Sleep: Marie de Manacéine, *Sleep: Its Physiology, Pathology, Hygiene, and Psychology*, 1897 (Scribner); McDougall, *op. cit.*, 76-80; Nathaniel Kleitman, *Sleep and Wakefulness*, 1939 (Univ. of Chicago Press); James Grier Miller, *Unconsciousness*, 1942, 119-127 (Wiley); PA 1 339, 13 6197, 20 2698, 25 5133.

⁷⁵ Cf. Johnson, *op. cit.*, 269.

⁷⁶ Cf. Roy M. Dorcus and G. Wilson Shaffer, *Textbook of Abnormal Psychology*, 1939, 198-199 (Williams and Wilkins).

⁷⁷ H. Barry, Jr., and W. A. Bousfield, *J. Abn. Psychol.*, 1935, 29:388; Bousfield, *J. Psychol.*, 1940, 9:400.

⁷⁸ *Loc. cit.*, 394.

11 | Learning and Memory

Whatsoever disposes the human body so as to render it capable of being affected in an increased number of ways, or of affecting external bodies in an increased number of ways, is useful to man.

Spinoza

If psychology is, as we said, the science of all processes which may involve learning, learning is a fundamental topic. Here we shall outline the topic in special relation to dynamic and abnormal psychology.

Definition of Learning

For perspective, let us remark at the outset that *learning is modification of reaction through experience*. This means modification not only of outer, behavioral responses, but also of inner, introspective reactions. Moreover, it does not mean modification by mere chemical or physical effects, though some of these, such as poisoning or fattening, may lead to learning; it means modification through some feeling, sensing, perceiving, or understanding, whether conscious or subconscious.

In the broadest sense, "learning" means the making, the types, and the fortunes of the modification referred to. In this sense it covers every section of this chapter. More narrowly, "learning" means only the making of the modification. In that sense, "learning" is the first phase of memory, of which the remaining phases are retention, recall, and recognition. Of these different senses of learning, usually context will indicate the one intended.

Types of Learning

Types of learning sometimes distinguished include learning something new, applying former learning in a new situation, conditioning, association, negative adaptation, experimental extinction, sensory learning, discrimination learning, multiple choice learning, motor learning, sensorimotor learning, serial learning, acquisition of skill, acquisition of delayed response, learning of relations, imitational learning, problem solving, trial-and-error, insight, rote learning, meaningful learning, animal learning, human learning, and, we should add, such higher forms as understanding, judgment, decision, abstraction, analysis, synthesis, reasoning, and creative thought. That these types variously overlap one another is obvious. Animal learning and human learning, in particular, though differing in complexity, seem alike in principle; hence we shall draw upon animal learning for illustrations at a number of points. Of the sundry types of learning, we shall discuss here only conditioning, association, negative adaptation, experimental extinction, trial-and-error, immediate learning, insight, and rote and meaningful learning.

Conditioning. Pavlov, it will be recalled, sounded a bell which made a dog listen and investigate; then he gave the animal some meat powder, which made him salivate; until, after the same sequence was repeated a few times, the bell by itself made the dog salivate. Thus the bell became a conditioned stimulus, and the salivation which it aroused became a conditioned reaction.

Moss blindfolded a two-year-old boy and got him to open his mouth. Six times, with a medicine dropper, he put sweetened orange juice on the boy's tongue. The seventh time, he put vinegar on instead, which made the boy spit, squirm, and cry. Next, four times, he gave orange juice; and one time, vinegar. This time, while giving the vinegar, he sounded a snapper which the boy had sounded previously in his own play. Again the boy spat and cried. Then, four times, he gave the boy orange juice; once, vinegar-and-snapper; four times, orange juice; and once, vinegar-and-snapper. The next day, sounding the snapper as pure water was dropped on the boy's tongue made him spit and cry.¹

By such methods, investigators have induced, in newborn infants, conditioned food-taking reactions; in young children, conditioned food-taking, food-rejecting, and bladder control; and in older subjects, con-

¹ Fred A. Moss, *J. Exp. Psychol.*, 1924, 7:475-478.

ditioned knee jerks, plantar reflexes, abdominal-muscle reflexes, wink reflexes, pupillary reflexes, rises in pitch of voice, finger jerks, "galvanic" skin reactions, gastric secretions, defensive blood reactions related to immunity, localized vasomotor constriction and dilation (for example, in the hand), and changes in the amplitude and rhythm of breathing and of the pulse. Apparently, many such reactions, also various affects (depression, fear, anger, love, delight) and conflicts become conditioned in daily life.²

"Take a feather," said Cullen, "and, by tickling the mouth of any person of a sensible and movable system, excite the convulsive contraction of the muscles of the face; repeat the same once or twice; then approach the feather near the mouth, the person will feel the sensation of tickling as much as formerly and have the same convulsive motions excited."³

Anxieties and angers which stop gastric secretion and peristalsis, and cause indigestion or even gastric ulcers, can become linked with particular situations or topics which arouse them.⁴

When Rousseau was eleven or twelve years old, he was tutored by Mademoiselle Lamercier, a pious, exacting spinster of nearly forty. It seems that the boy must have developed a keen erotic fixation upon this good woman; for one day, when she whipped him soundly, he records that he "found in the stimulation of pain, and even of shame, a mingled sensuality which left more desire than fear of experiencing the same treatment at the same hands." His supreme pleasure from this moment, which he himself marked well, was to be rebuked, chided, punished—by the loved one.⁵

Galton practiced imagining a comic picture of Punch to be divine and addressing it reverently, until he came to feel toward the picture much that a barbarian feels toward his idol. "This result," says Boring, "must have been a great triumph for a nature so little subject to superstition." He also undertook to imagine every human, animal, or inanimate object he met to be spying upon him. "Having arranged plans," he says, "I started on my morning's walk from Rutland Gate, and found the experiment only too successful. By the time I had walked one and

² Clark L. Hull, in Carl Murchison (ed.), *Handbook of General Experimental Psychology*, 1934, 392-416 (Clark Univ. Press); Moss, loc. cit.; O. H. Mowrer and Willie Mae Mowrer, *Am. J. Orthopsychiat.*, 1938, 8:436-459; A. H. Maslow and Béla Mittelmann, *Principles of Abnormal Psychology*, 1941, 86 (Harper); and the present chapter, *passim*.

³ Adapted from William Cullen, *Clinical Lectures*, 1797, 270.

⁴ M. N. Chappell and F. H. Pike, *The Nature and Control of Psychological Illness* (mimeographed); Maslow and Mittelmann, *op. cit.*, 435-438.

⁵ Adapted from Matthew Josephson, *Jean-Jacques Rousseau*, 1931, 18-19 (Harcourt).

a half miles, and reached the cab-stand in Piccadilly at the east end of the Green Park, every horse on the stand seemed watching me, either with pricked ears or disguising its espionage. Hours passed before this uncanny sensation wore off, and I feel that I could only too easily re-establish it."⁶

One investigator reported "conditioning away social bias by the luncheon technique." He discovered first the social bias of 100 judges in rating photographs of college girls. He then presented the least-liked items to 12 of the judges while they were given a free lunch, and the most-liked items to the same 12 while they were hungry. A rerating showed "a definitely reliable conditioning away or removal of the bias."⁷

Certain cases of stuttering, and certain occupational cramps, seem to be conditioned conflictful responses.⁸ Many conflicts about particular tasks or topics in daily life seem likewise conditioned; though for many other conflicts this interpretation is too simple.

Not all conditioning is conscious. Various studies have shown this. In one study, Baker found conditioned auditory-pupillary response more readily established, and more lasting, when the stimulus is subliminal than when it is supraliminal (the limen being the point of awareness).⁹

In human subjects, conditioning is often complicated with sets, attitudes, wishes, and intentions.¹⁰ For this reason, among others, some psychologists would limit the term "conditioning" to a very simple kind of sensorimotor learning. Other psychologists apply the term more widely. For our purposes, it seems sufficient to recognize relatively simple and complicated types of conditioning, and to say that *conditioning means that a hitherto irrelevant excitation comes to arouse essentially the same reaction ordinarily aroused by some other excitation.*

Association. "Association," to quote McGeoch, "means that when you hear the question, 'In what year did Columbus discover America?'

⁶ Edwin G. Boring, *A History of Experimental Psychology*, 1950, 484-485 (Appleton-Century-Crofts); Francis Galton, *Memories of My Life*, 1909, 276 (Dutton).

⁷ G. H. S. Razran, *Psychol. Bull.*, 1938, 35:73.

⁸ Cf. Knight Dunlap, *Habits: Their Making and Unmaking*, 1932, 198-199 (Liveright); Taylor, *Readings*, 733.

Conflicts have been conditioned in the laboratory in various animals (though not all of the reactions so reported seem to be conflicts). For a bibliography, cf. H. W. Karn, *Psychol. Rec.*, 1940, 4:35-39.

⁹ Ernest R. Hilgard and Donald G. Marquis, *Conditioning and Learning*, 1940, 205 (Appleton-Century); Lynn E. Baker, *Psychol. Bull.*, 1937, 34:772. Cf. also several studies by Clarence Leuba.

¹⁰ PA 7 871, 16 506.

you reply, '1492'; that, when you sit at your typewriter, your fingers execute the movements necessary to type the copy or words which express your ideas; or that when you are faced with a thought problem, such as solving an algebraic formula, relevant data come to mind and are used. The initial situation in all these cases is 'associated with' the phenomena which follow it."¹¹ "Association" points to countless linkages between mental processes, linkages normal and abnormal.

For example, Laird's data from 254 distinguished persons reveal many strong associations between odors and memories; associations such that, even in old age, the odors automatically call up memories from as far back as early childhood. The suggestion follows that some psychoanalyses might be facilitated by studying the patients' odor associations.¹²

Like conditioning, association is often complicated with various motivational processes, and is used in more inclusive and in less inclusive senses. For our purposes, as remarked before, *association is the learning or revival of associations, i.e., of relatively lasting connections acquired through learning.*

Negative adaptation and experimental extinction. A spider drops from its web whenever a tuning fork is sounded, until, after 8 or 9 trials, it comes to disregard that stimulus. When a horse afraid of trains is pastured close to the track, it learns to disregard the trains. When a human subject is rotated repeatedly, he learns to eliminate the eye movements which occur ordinarily upon rotation. Each of these examples illustrates "negative adaptation," or, as it is sometimes called, "habituation." Pavlov found that the dog's conditioned salivary reflex to the bell soon disappeared unless food followed the bell occasionally. In his language, this meant that the conditioned reflex must be "reinforced" if it is to be preserved from "experimental extinction." A human example of similar extinction is the fable of the young shepherd who called "Wolf, wolf!" when there was no wolf, until, when the wolf came, he shouted the same words and no one listened. Apparently related to negative adaptation and experimental extinction are the "psychical satiation" studied by Karsten, and the "staleness" of everyday life.¹³

¹¹ John A. McGeech, in Edwin G. Boring, Herbert S. Langfeld, and Harry P. Weld, *Introduction to Psychology*, 1939, 292 (Wiley).

¹² Donald A. Laird, *Psychoan. Rev.*, 1934, 21:194-200.

¹³ G. R. Wendt, *Psychol. Bull.*, 1931, 28:681-682, 1932, 29:657-658; I. P. Pavlov, *Conditioned Reflexes*, 1927, 48 ff.; Kurt Lewin, *A Dynamic Theory of Personality* (Adams and Zener, trs.), 1935, 254-256 (McGraw-Hill); PA 17 3358.

Negative adaptation and experimental extinction, at any rate, seem to be essentially the same process: in each, the excitation in question—tuning fork, train, rotation, bell, phrase—becomes “meaningless” unless some satisfaction or dissatisfaction recurs with it to keep it “meaningful.”

The excitation becomes meaningless, Wendt suggested, as its reaction becomes *replaced by other reactions*.¹³ This interpretation explains negative adaptation and experimental extinction through inhibition and makes them the negative side of *learning to do something else in the given situation*. Thus, Guthrie told of a woman student whom a neighbor's radio kept from studying, until, upon reading mystery stories for a week despite the radio, she found she could study despite the radio. Guthrie classified the case under conditioning.¹⁴ It would seem that the spider that has learned to spin instead of dropping from its web might come to spin faster when the tuning fork sounds; that the horse's trick of grazing instead of running might become conditioned to the train; that the peasants who have rallied once to the boy's fruitless “Wolf, wolf!” would concentrate more upon their work when they hear that sound again; and that, in time, the student would find it hard to study without the radio. Normal forgetting of the original, disturbing connections may occur also; but we assume that negative adaptation is more than forgetting.

Naturally, there are limits to negative adaptation. In rats, Finger observed that “audiogenic seizures” (apparently fright reactions) decreased somewhat when moderately intense sounds were repeated daily, but did not so decrease when very intense sounds were repeated similarly.¹⁵

Without going further into the psychology of negative adaptation and experimental extinction, let us say simply that *negative adaptation is learning to disregard a given excitation*, and that *experimental extinction is negative adaptation to a conditioned excitation*.

Trial-and-error, immediate learning, and insight. Trial-and-error is illustrated by the animal that seems “lost” in its maze or problem box, until, through reacting “blindly,” it chances upon a way out and thereafter finds that way more and more quickly. The human being often learns by trial-and-error, both in doing things and in thinking out

¹⁴ E. R. Guthrie, *The Psychology of Learning*, 1935, 21-22 (Harper). Cf. also O. H. Mowrer, *Psychol. Bull.*, 1941, 38:428, 423.

¹⁵ PA 16 1930.

problems. Thus, in learning to operate some new device, or in thinking up a suitable rhyme, he runs through many "useless" reactions before hitting upon a satisfactory one. To be sure, seldom if ever are the trials wholly blind, or the outcomes "pure chance"; most trials are determined partly by the subject's perceptions; usually the subject is fumbling toward a goal. The fact that he is fumbling, however, leads to a definition suggested by James Harvey Robinson: ¹⁶ *Trial-and-error is learning through fumbling and success.*

Not all learning involves trial-and-error or any considerable delay. Many a fear, disgust, attraction, like, dislike, muscular response, or other association is fixed by a single impression.¹⁷ This is *immediate learning*.

No less different from trial-and-error is insight, in the sense not of self-knowledge but of sudden solution of a problem. Such insight is illustrated by Köhler's ape, fitting two sticks together and so reaching some fruit. A human example is suddenly understanding the principle of a puzzle. A number of writers contrast such insight with trial-and-error, and consider trial-and-error not typical learning but something that occurs in situations too complex for insight. It seems more likely, however, that insight differs both from trial-and-error and from immediate learning in being *not* learning but previously established reaction, even perception, released perhaps by chance factors. From this point of view, *insight is fortunate release of previously established reaction.*¹⁸

Rote and meaningful learning. "Gib, fom, rel, bup"; "Thirty days hath September...";—such series, learned by sequence, rhythm, or rhyme, and not by reason, make up rote learning. At the other extreme, why cold lowers the mercury in the thermometer; why ice floats; why men often behave differently in different groups; how we learn;—such facts, relations, understandings, learned by reason, principle, systematization with what we know, make up meaningful learning.

As judged both by introspective reports and by objective measures, rote learning seems so different from meaningful learning that many psychologists feel that these two kinds of learning must be explained in quite different ways. Perhaps they must: it is hard to know what

¹⁶ *The Mind in the Making: The Relation of Intelligence to Social Reform*, 1921, 69 (Harper).

¹⁷ Cf. Hulsey Cason, *Psychol. Rev.*, 1933, 40:285-286.

¹⁸ Cf. Wolfgang Köhler, *The Mentality of Apes* (Winter, tr.), 1926, 125-132 (Harcourt); PA 20 728, or Herbert G. Birch, in Eugene L. Hartley and others, *Outside Readings in Psychology*, 1950, 582-595 (Crowell).

meaning is ultimately, and how it relates to learning. It seems likely, however, that meaningful learning rests more upon previous learning than does rote learning, hence is already farther along on "the learning curve" or on several learning curves at once; and that all meaningful learning derives from originally meaningless sources. This view acknowledges no *a priori* reason why mercury and many other substances should contract when cold; why they should melt or vaporize when hot; why groups of one's fellows should affect one; and why one should learn at all. The view acknowledges only that, having learned such things arbitrarily, further learnings become meaningful in relation to them.

This is not to deny that some of the arbitrary learnings must occur more easily than others.

Special Phenomena of Learning

Of the many special phenomena of learning, we shall consider here only early memories, transfer, interference, incubation, automatization, higher units, and redintegration.

Early memories. Some psychoanalysts report patients' memories of being born, and even of experiences before birth. Most, if not all, psychologists think that these reports are not of true memories.

Verified memories have occurred in some normal subjects without psychoanalysis, hypnosis, or automatic writing, and in some abnormal subjects through those special methods, dating from about the ninth month of infancy.¹⁹ According to several studies of ordinarily available memories in unselected individuals, more first memories are unpleasant than pleasant.²⁰ Also, as would follow from our understanding of integration, repression, and dissociation, there is some evidence that more early memories are normally available in stable than in unstable individuals.²¹

Alfred Adler held that first memories "must be very near to the main interest of the individual; and if we know his main interest we know his goal and style of life." From such memories "we can judge whether the child was pampered or neglected; how far he was training for cooperation with others; with whom he preferred to cooperate; what

¹⁹ Cf. Mason N. Crook and Luberta Harden, *J. Soc. Psychol.*, 1931, 2:252-255; PA 16 97; Alfred Binet and Charles Féré, *Animal Magnetism*, 1905, 137 (Kegan Paul); Lewis R. Wolberg, *Hypnoanalysis*, 1945, 225 (Grune).

²⁰ PA 3 576, 4 366, 7 4065, 10 2380.

²¹ Crook and Harden, *loc. cit.*, 255.

problems confronted him, and how he struggled against them. I would never investigate a personality without asking for the first memory. Another point of interest in first memories is that their compression and simplicity allows us to use them for mass investigations. We can ask a school class to write their earliest recollections; and, if we know how to interpret them, we have an extremely valuable picture of each child.

"Let me, for the sake of illustration, give a few first memories and attempt to interpret them. I know nothing else of the individuals than the memories they tell—not even whether they are children or adults. The meaning we find in their first memories would have to be checked by other expressions of their personality; but we can use them as they stand for our training and for sharpening our ability to guess. We shall know what might be true, and we shall be able to see whether the individual is training towards cooperation or against it, whether he is courageous or discouraged, whether he wishes to be supported and watched or to be self-reliant and independent; whether he is prepared to give or anxious only to receive.

"1. 'Since my sister . . .' It is important to notice which people in the environment occur in first memories. When a sister occurs, we can be pretty sure that the individual has felt greatly under her influence. Generally we find a rivalry between the two; and we can understand that such a rivalry offers difficulties in development. A child cannot extend his interest to others as well when he is occupied with rivalry as when he can cooperate on terms of friendship. We shall not jump to conclusions, however: perhaps the two children were good friends.

"'Since my sister and I were the youngest in the family, I was not permitted to attend school until she (the younger) was old enough to go.' Now the rivalry becomes evident. My sister has hindered me! She was younger, but I was forced to wait for her. She narrowed my possibilities! If this is really the meaning of the memory, we should expect this girl to feel, 'It is the greatest danger in my life when some one restricts me and prevents my free development.' It would not surprise us to find her disliking women younger than herself. Some people feel too old all through their lives, and many jealous women feel inferior towards members of their own sex who are younger than they.

"2. 'My earliest recollection is of my grandfather's funeral, when I was three years of age.' The girl has seen death as the greatest insecurity in life, the greatest danger. Our culture does not make it any too easy for old people to feel convinced of their worth and sometimes they seek to be convinced through easy means—through querulousness, for example. Here we are inclined to believe that the grandfather spoiled this girl when she was a baby and that it was his pampering that fixed him

so deeply in her memory. When he died, she felt it as a great blow. A subject and ally had been taken away.

"3. 'My earliest recollections are of being taken to parties and other social events by my oldest sister, who was about eighteen when I was born.' This girl remembers herself as part of society; perhaps we shall find in this memory a higher degree of cooperation than in the others.

"'Since my sister was the only girl in a family of four boys until my arrival, she was naturally pleased to show me off.' This sounds by no means so good as we thought. When a child is 'shown off,' it may become interested in being appreciated, instead of in contributing. 'She therefore took me about when I was comparatively young. The only thing I can remember about these parties is that I was continually urged to say something; "Tell the lady your name," and so on. I can also remember that I would say nothing and was invariably scolded when I reached home, so that I came to hate to go out and meet people.' Our interpretation must be altogether revised. We can see now that the meaning behind her first memory is, 'I was brought into contact with other people, but I found it unpleasant.' We should expect, therefore, that even now she dislikes meeting people. She has been trained away from ease and equality among her fellow beings."²²

Eisenstein and Ryerson (1951) reported use for the first conscious memory in psychodynamic diagnosis.

That the earliest impressions are important, as various philosophers, the Jesuits, and modern psychiatrists have taught, has some experimental support. Burt read three selections of Greek tragedy in iambic hexameter to his 15-month-old son daily until the child was 18 months old. During the next three months, he read three other comparable selections, and so on until the child was 3 years old. When 8 years old, the boy relearned representative selections with 40% fewer repetitions than were required to learn comparable new selections. When 14, the boy relearned other representative selections with a saving of only 8% of the repetitions required for learning new ones.²³ This suggests that infantile learning may affect childhood learning more directly than it does adolescent learning, but that it still may affect adolescent and later learning through affecting any intervening childhood learning. Britt and Bunch presented evidence that earlier learnings play more positively into later learnings than these do into still later learnings,

²² Adapted from Alfred Adler, *What Life Should Mean to You*, 1931, 30, 74-79, 81-82 (Little; later Grosset). Cf. also *ibid.*, 79-81, 82 ff.; Kenneth Purcell, *J. Abn. Psychol.*, 1952, 47:433-440.

²³ PA 11 1530.

and that the earlier learnings are less disturbed by later learnings than these are by their successors; in other words, that the earliest learnings show the most transfer and are least subject to retroactive interference.²⁴

Transfer (positive transfer effect). While the traditional notions that to learn geometry develops reasoning in general, to learn history develops the memory in general, and so on, have been pretty well disproved, certain forms of transfer do occur.

One of these forms is bilateral transfer, or cross education. Thus, learning a certain maze with one hand makes it about 80% easier to learn the same maze with the other hand, and practicing an improved script with the left hand has carried over surprisingly to the right hand.²⁵ Many a subject who writes ordinarily with his right hand does automatic writing, after very little practice, with his left hand.²⁶ Apparently, bilateral transfer helps to explain the often-noticed shifts of psychoneurotic symptoms from one side of the body to the other; for example, an anesthesia of the right shoulder suddenly transferring to the left shoulder; or a tic of the right leg coming out in the left leg instead, after a short time moving back again, and at intervals switching back and forth without apparent reason.²⁷ Bilateral transfer would seem to enter likewise into allochiria, in which the subject localizes a touch or any other stimulation of one side of his body as on the opposite side; and into allokinesia, in which, contrary to his normal habits, he innocently performs any requested movement on the opposite side of the body from the side requested—when asked to raise his right hand, he raises his left hand.²⁸

The most general form of transfer is helpful carry-over of learning from any problem to a different problem. Examples are learning to play volley ball, then learning basketball more easily; learning Latin, then Italian more easily; learning how to study Latin, so learning how to study other languages; learning general principles that can be applied in various situations; and learning anything that reinforces prior learn-

²⁴ PA 8 1991, 3960.

²⁵ Cf. R. H. Waters, *Psychol. Bull.*, 1936, 33:798-799; Paul Campbell Young, *ibid.*

²⁶ Cf. Anita M. Mühl, *Automatic Writing*, 1930, 23, 32 (Steinkopf, Dresden).

²⁷ Cf. Pierre Janet, *The Major Symptoms of Hysteria*, 1907 or 1920, 298-300 (Macmillan), *The Mental State of Hystericals*, 1901, 177 (Putnam).

²⁸ Janet, *The Major Symptoms of Hysteria*, 183, *The Mental State of Hystericals*, 64 ff., 177 ff.

ing.²⁹ A striking example from the abnormal field is Erickson's cure of a neurosis by first creating hypnotically an artificial neurosis which symbolized the real one, then psychoanalytically educating away the artificial neurosis, whereupon the real neurosis disappeared too. It would seem that many an author works out his own emotional problems similarly, through working out plots which symbolize his own problems; and that readers who follow those plots, so learning them, learn how to solve their own related problems.³⁰

Perhaps the best explanation of transfer is through similar reactions, affective, perceptual, thought, motor, or some combination of these, caused by similar situations; the similar reactions, in turn, occurring through common neural and other bodily mechanisms.

In any event, *transfer is learning in one problem helping in a different problem.*

Interference (negative transfer effect). The opposite of transfer is interference. In interference, carry-over of learning in one problem does not help but hinders learning in a different problem. Thus, Köhler observed that his apes, especially when tired, ill, or excited, often made stupid mistakes through bringing to a new problem reactions learned in meeting some quite different problem.³¹ We often bring to a new problem reactions which have been useful somewhere else, but which make it harder to master the new problem than if we had not learned those particular reactions. The person whose childhood language has been French has a hard time learning to pronounce English. The gambler, thief, or chronic deserter would find it easier to become industrious, honest, or loyal if he had not already learned the opposite pattern. Many a psychoneurosis is built up through earlier abnormal impressions reinforcing later ones, and these apparently reinforcing the earlier ones, through transfer; whereupon the psychoneurotic pattern so learned gets in the way of later adjustments, through interference.³²

Interference occurs also between simultaneous possibilities of learn-

²⁹ On such retroactive transfer, cf. Edwin G. Boring, *The Physical Dimensions of Consciousness*, 1933, 208, 218 (Century).

³⁰ Cf. Milton H. Erickson, *Brit. J. Med. Psychol.*, 1935, 15:Part 1, 34-50; Herbert S. Langfeld, in A. A. Roback (ed.), *Problems of Personality. Studies Presented to Dr. Morton Prince, Pioneer in American Psychopathology*, 1925, 382 (Harcourt); PA 10 1113, 11 1411.

³¹ Köhler, *op. cit.*, 195.

³² Cf. W. S. Taylor and Elmer Culler, *J. Abn. Psychol.*, 1929, 24:395 circa.

ing; for example, a student learning what is in a letter fails to learn what is being said in a lecture at the same time.

Again, new learnings can interfere with the recall of prior learnings. Persons playing games, upon overhearing a joke, breaking some equipment, or seeing a fire truck, often forget the score. In much the same way, a strong adverse impression or mental shock often prevents recall of what happened just before it. This is called retrograde amnesia. Sometimes, however, a strong impression (whether usually a favorable impression or not we do not know) prevents recall of what happened immediately afterwards. This is anterograde amnesia. Either type of amnesia may cover a few or many learned items.

As these examples suggest, interference is unhelpful carry-over of learning, either from a prior to a subsequent problem, as when knowledge of French interferes with learning English (so far as it does so); from one problem to a simultaneous problem, as when the letter excludes the lecture; or from a subsequent to a prior problem, as in retrograde amnesia. These three forms of interference, often called associative inhibition, distraction, and reproductive inhibition, respectively, we shall call proactive interference, simultaneous interference, and retroactive interference.

Whatever the type, interference seems to reduce to conflict between learned reactions and reactions that are to be learned or recalled.

Interference is learning in one problem hindering in a different problem.

The term is also used to mean opposition between any processes.

Incubation. Often a new name, or a list of nonsense syllables, is not recalled so successfully at once as after a little time. This phenomenon, technically called reminiscence, seems to be the prototype of incubation. (Incubation is also called "maturation of reaction"; which is confusing, since this phrase might mean maturation of the native capacity for the reaction.) Incubation occurs when one solves a problem by first getting a clear view of it and trying to think up the possibilities, then "laying it aside" or "sleeping on it" until the solution emerges. Normally, incubation produces "hunches," inspirations, solutions, and decisions. Abnormally, incubation produces various repressions, compulsions, and special dissociations, including functional anesthetics, amnesias, hallucinations, visions, delusions, and abnormal motor phenomena. Thus, symptoms caused by a distressing experience commonly do not form until a day or two after the experience. (This is the "period of medita-

tion" of Janet.) Symptoms caused by more complex factors often develop more slowly.³³

Probably the explanation of incubation includes physiological neural changes; loss of obstructive sets, through forgetting; some retroactive transfer from relevant new impressions; more or less subconscious trial-and-error, practice, and organization; and chance disinhibition of the pattern so developed.

Incubation is relatively subconscious learning subsequent to impression.

Automatization. Everyone knows that patterns are often highly conscious when being learned, but become "automatic" or subconscious when fully learned; in other words, patterns become automatized. Thus, with practice, one becomes able to read, or type, or run through a ceremony, while thinking of something else; one need think of only a part of the performance, such as picking up the book, starting to type, or going to the ceremonial place, for the rest of the performance to occur automatically. The rest does so occur because it has become organized with the part thought of, which part serves as a symbol or cue for the rest. Normal organization of this kind, normal automatization, makes for smooth, adjustmental performances. Abnormal automatization appears in repressions, compulsions, and special dissociations; for example, in tics, stereotypies, and hysterical patterns which "go off" as rigid wholes unsuited to the total situation. Thus abnormal automatization makes for crude, nonadjustmental performances.

Higher units. Any complex automatized pattern may be called a "higher unit." Examples of higher units are the word which can be read and written without thinking of the component letters, and the phrase which can be used without thinking of the component words. Thus normal higher units save attention, and enable one to perceive, judge, and do more than when limited to lesser patterns. Abnormal higher units wastefully consume or divide attention through functioning as patterns opposed to or broken off from the rest of the individual.

Redintegration. Through conditioning, we saw, a reaction becomes aroused by an excitation formerly irrelevant; for example, salivation

³³ Cf. Janet, *The Mental State of Hystericals*, 332, 337; Taylor, *Readings*, 373, 465, 556; Taylor and Culler, loc. cit.; Robert W. White, *The Abnormal Personality*, 1948, 228-230 (Ronald).

becomes aroused by a bell. Continuing to use "conditioning" in a broad sense, we shall say that any external or internal item, such as a bell or a thought, which touches off a conditioned reaction *redintegrates* that reaction. *Redintegration is arousal of reaction by conditioned excitation.*³⁴

Normal redintegration reflects integration, hence, as a rule, arouses a reaction appropriate to the subject's present situation. *Abnormal* redintegration reflects unintegration, hence arouses a reaction inappropriate to this situation. Normally, good water presented to a thirsty person redintegrates drinking. Abnormally, the same water may redintegrate panic. Such abnormal redintegrations are to be found not only in persons with mental disorders but also in essentially normal persons.

"Wladislas, king of Poland, trembled and fled when he saw apples. Scaliger trembled all over at the sight of watercress. Bayle had convulsions at the sound of water running from a faucet. A physician 'of much spirit,' Pierre d'Apons, experienced such terror at the sight of milk and cheese that he fainted."³⁵

Pierce, in 1913, asked 52 women students to report their "pet aversions," aversions running from strong dislike to acute fear. Forty-two of these students, more than 80% of the group, reported at least one aversion each. The complete list of aversions reported follows:

Grating sounds; noise of sharpening a saw; sound of charred sticks rubbing together; sound of running water; thunder and lightning; high places; cats (3 students); cat fights; contact with cats; picking up (though not to holding and stroking) any pet or small animal; mice (3 students); spiders (2 students); June bugs; holding buzzing locusts; clothes moths; snakes; snakes and worms; monkeys; being tickled or threatened with tickling; being touched; being photographed; the odor of curry powder; eating lobster (not to seeing lobster); eating blackberries; creamed salt codfish; soft-boiled eggs; sticks of chewing gum; soft substances such as custard; rubbing satin the wrong way; biting serge; touching rubber overshoes; rubber; metal fringe; mother-of-pearl; buttons, loose ones particularly; sleeping in a room with an open closet door; seeing a knife cut through anything easily; feeling pulse and heart beats; drunken men; seeing people cross their eyes; insane, intoxicated, or emotionally upset people; the word "slough"; and an aversion the individual would prefer not to describe.

The student with the aversion to sticks of chewing gum wrote:

³⁴ Adapted from William Hamilton after H. L. Hollingworth, *The Psychology of Functional Neuroses*, 1920 (Appleton), and later works.

³⁵ A. Pitres and E. Régis, *Les Obsessions et les impulsions*, 1902, 41 (Doin, Paris), as translated by Arthur Henry Pierce.

"Chewed gum does not seem to affect me at all; in fact, once, with the greatest effort and with absolute torture to my feelings, I forced myself to chew a stick of gum into an almost tasteless form, that is, quite beyond that awful crumbly stage; and I could then almost enjoy the sensation. It seldom bothers me, moreover, to see other people chew gum, unless I happen to be watching when they take it into their mouth at first; or unless I happen to think that it was necessary once for them to have touched the fresh stick to their teeth.

"The touch of fresh gum to my own teeth, the thought of putting it to my mouth, the sight of the gum itself or a mere mental picture of it, causes me to completely lose control of myself. Shivers . . . nausea . . . a desire to close my eyes to shut out the image which is usually, however, very persistent. By far the worst feeling is in my mouth. My teeth seem set on edge, and I have to open my mouth, or else put my finger between them, to keep them from touching. Every tooth in my head feels rough, and has a most peculiar feeling—it is as though each tooth were dizzy and almost swaying in its place.

"I know of no reason for this strong aversion, yet so strong it is, that even as I write I have a faint, uncomfortable feeling and a desire to get through this description as quickly as possible."

In many instances, different aversions involve quite different reactions, even within a single person. Thus, one student had one aversion to June bugs and another to spiders. Her reaction to June bugs was terror; but her reaction to spiders was uncontrollable hatred, in which she fell to killing the spiders furiously, unable to think, as she did at other times, that spiders should be allowed to live.

For some of these aversions, at least partial sources were recalled. For example, the student with the aversion to seeing a knife cut easily wrote:

"We were going through a printing shop one day three years ago next April when I stopped before a machine used to cut paper. It consisted simply of a huge blade hanging suspended vertically. Thick blocks of paper at least two feet through were placed under it and, at a single turn of a certain lever, the blade fell with a *thud*, cutting directly through the paper. The ease with which it fell through the paper and the force of the whole thing impressed me rather strongly at the time, and I watched it fascinated. Just then the guide said jokingly: 'How would you like to have your wrist under that?' I remember I shuddered and felt nauseated for some time; but the chief trouble came later. For days the vision of that knife cutting through my wrist haunted me, and from that time I have been troubled by it. . . .

"This reaction has been practically the same throughout. It is more violent when I am unprepared for seeing what produces it, and when

I am nervous, tired, or excited. Never is there any marked reaction unless the image is produced; then I can see and feel the knife cutting through my wrist. I find myself shuddering, and my whole body tense, with the knees drawn up slightly. I have a feeling of horror and want to sob; I find that I catch my breath and gasp. My teeth and jaw are set, my hands are clenched, and my whole face feels drawn, particularly the forehead, where there is a great feeling of strain. When this passes I generally find myself with my left hand or wrist pressed tightly against my mouth. It leaves me with an indefinite feeling partly of sorrow and partly of horror."³⁶

One of Haberman's patients complained that he became dizzy every time he looked over the balcony at the opera. Haberman found that the patient had first become dizzy in that situation after a bilious attack.³⁷

Strecker and Appel observe that "Jones 'hates' liver. It is found that as a youngster he was often forced to eat it against his will and became emotionally upset and physically sick. A certain woman becomes nauseated when she sees a red rose. It relates to a previous decidedly unpleasant emotional experience in which a red rose figured prominently. Smith dislikes a certain tree. On reflection, he recalls that switches from the same kind of tree were used to adjust him to the path of virtue in childhood.

"A former soldier has a terrific fear of thistles. He cannot account for it. Analysis reveals that during the war he had experienced intense fear while lying under a thistle bush trying to hide from enemy snipers. He had entirely 'forgotten' the experience. Another soldier cannot ride in a trolley car. He 'cannot stand' the unexplained feeling of dread which promptly appears. It turns out that the trolley running along the wire sounds to him like the hissing of bullets. A gentleman disgraced himself at a social gathering by a violent attack of vomiting while one of the guests was picking out a sailor's ditty on the piano. It developed that years before he was distressingly sick in his bunk on a coastwise steamer while just below him a sailor was drumming out on an old piano the selfsame ditty. He had forgotten the incident."³⁸

One person could not untie a small knot without a sense of nausea.³⁹

A young woman suffered from frequent spells of vomiting. According to Haberman, "She had been 'pumped,' lavaged, dieted, physicked, and treated with innumerable drugs. Nothing had helped. Analysis

³⁶ Adapted from notes left by Arthur Henry Pierce.

³⁷ Cf. J. Victor Haberman, *Med. Rec.*, 1917, 92:931. Cf. also PA 4 4852.

³⁸ Adapted from Edward A. Strecker and Kenneth E. Appel, *Discovering Ourselves: A View of the Mind and How It Works*, 1931, 218-220 (Macmillan).

³⁹ Daniel Hack Tuke, *Illustrations*, 1873, 46.

showed that the parents of the girl had wished her to marry a certain man who was physically offensive to her. The girl objected and the parents persisted. There were arguments, quarrels, scenes. The man was disgusting to her. One night he called and the girl felt nauseated. After he left she vomited. Expecting him the following evening, she vomited before he came. Thereafter she had vomiting spells every time the man was expected or called. Even thinking about him brought on the attacks."⁴⁰

Prince reported that a neurasthenic woman who had had several children, but who was past the age of childbearing, still "never heard a child cry without having a feeling of swelling or fullness in her breasts as if the milk were running into them. This feeling was the same as when she was nursing her children. On a late occasion, when she was taking care of a friend after confinement, this feeling was so strongly excited by the crying of the child that her breasts ached for a whole week during which she was in attendance."⁴¹

Berlioz, describing his struggles as a young composer, said: "I was so ignorant of the scope of certain instruments that, having written a solo in D flat for the trombones in the introduction to the *Francs-Juges*, I got into a sudden panic lest it should be unplayable. However, one of the trombone players at the opera, to whom I showed it, set my mind at rest. 'On the contrary,' said he, 'D flat is a capital key for the trombone; that passage ought to be most effective.' Overjoyed, I went home with my head so high in the air that I could not look after my feet, whereby I sprained my ankle. I never hear that thing now without feeling my foot ache."⁴²

In some cases, a small abnormal redintegration develops into a large one.

An example appears in William Ellery Leonard's published account of his own case. When he was two years and four months old, Leonard was timorous, dutiful, and proud. One day his mother took him to the railway station to meet a train. She told him not to go near the track, but he disobeyed her. An oncoming locomotive then caused in him a reaction of terror, guilt, shame, and flight to his mother. When he was nine years old, a misunderstanding and consequent mortification at school, also the school bell and children's noise, caused terror, remorse, shame, resentment, and flight to his home. When he was a young

⁴⁰ Adapted from loc. cit.

⁴¹ Adapted from Morton Prince, *Clinical and Experimental Studies*, 1929, 69 (Sci-Art).

⁴² Hector Berlioz, *The Life of Hector Berlioz as Written by Himself in His Letters and Memoirs*, 1903, 37 (E. P. Dutton & Co., Inc.).

man, a girl's refusal to marry him caused terror, remorse, shame, resentment, and flight to Germany, where he had found a spiritual home. When he was 35, his wife's suicide, popular accusation that he had driven her to it, and an engine bell and other associated items caused horror, grief, terror, remorse, resentment, and flight into his home zone. For the remaining 38 years of his life, he was seldom able to force himself more than a few blocks from his home; and his second wife had to accompany him on his short walks or stay at home as a "center of safety" for him. Thus sheer distance from home-and-wife came to redintegrate a whole phobic pattern or complex.⁴³

Various redintegrations are either more or less complicated than they appear. Thus, as Prince pointed out, not every word association that arouses emotion must involve a subconscious complex. On the contrary, it is possible "that the conscious idea alone, without the cooperation of a subconscious process, is sufficient to awake the emotion; just as in Pavlov's dogs the artificially formed association between a tactile stimulus and the salivary glands is sufficient to excite the glands to activity, or as in human beings the idea of a ship by pure association may determine fear and nausea, the sound of running water may excite the bladder reflex, or an ocular stimulus the so-called hay-fever complex. The total mechanism of the process we are investigating must be determined in each case for itself."⁴⁴

Ordinarily, either normal or abnormal redintegrations can be modified through learning, but the more abnormal ones are the less easily modified. Many abnormal redintegrations yield little by little to everyday corrective learning; some yield suddenly to strong corrective learning; and some require "deep therapy," analytical psychotherapy, to change them through retraining their historical roots.

Phases of Memory

As remarked before, "learning" is used in a broad sense and in a narrow sense. In the broad sense, it means the making, the types, and the fortunes of any modification of reaction through experience. In that sense it covers this whole chapter. In the narrow sense, learning is the mere making of the modification. In this sense, learning is the starting point of memory.

⁴³ William Ellery Leonard, *The Locomotive-God*, 1927 (Century); Taylor and Culler, loc. cit., 390-395, 343.

⁴⁴ Adapted from Morton Prince, *The Unconscious*, 1921, 418 (Macmillan).

Memory falls into four phases, namely, learning, in the narrow sense; retention; recall; and recognition. Let us consider each of these phases.

Factors in Learning

Learning seems to depend essentially upon the several factors, intelligence, general condition, noninterference, active motivation, and joining of connections.

Intelligence. Obviously, learning cannot exceed the learner's intelligence, his native capacity to learn. Other things being equal, the bright individual learns better than the dull (Krasnogorski, 1909).

General condition. Likewise, the healthy, rested individual learns better than the one who is sick, weak, fatigued, or drugged.⁴⁵ What look like exceptions, intense learnings despite such limitations, seem to derive from extraordinary noninterference, or active motivation, or both, offsetting the learner's poor condition.

Noninterference. Noninterference means freedom from all contrary reactions. It occurs whenever contrary reactions are either nonexistent, or inhibited, or dissociated.

Everyone knows that the ignorant person is gullible. He is gullible because he lacks contrary reactions. For any person, the first experience of any given kind is often more impressive than later experiences of the same kind. For this observation there is considerable experimental evidence, some of which we have seen in connection with early memories. Accordingly, psychologists speak of "primacy" as a factor of advantage in learning. A likely partial explanation is that the first experience falls upon an area in which contrary reactions are relatively nonexistent.

Experiences which occur when the learner is well set for them are usually more impressive than those which occur when he is set otherwise. To be well set means that the learner's interest is here and not elsewhere; that he does not have even subconscious, active interests to the contrary; and that what he is to learn is presented to him neither too much nor too little at a time for him, neither too fast nor too slow, and "spaced" instead of all in a string.⁴⁶ Otherwise, the contrary re-

⁴⁵ Cf. Lawrence Edwin Cole, *General Psychology*, 1939, 371-374, 404, 78-80 (McGraw-Hill); descriptions of senile and of Korsakow's psychoses; PA 11 4530, 12 227, 11 1219.

⁴⁶ Cf. Taylor, *Readings*, 622-625; PA 7 5342; McGeoch, loc. cit., 325-326.

actions interfere with learning. At least a part of the advantage of being well set would seem to be that contrary reactions are inhibited.

Various experiments in learning nonsense items have shown that the item learned last is learned better than those which immediately preceded it; in other words, that such learning is favored when no other learning follows upon it for a time. This principle has been named "subsequence."⁴⁷ Further studies indicate that, if the only concern is to conserve a given learning of nonsense material, it is better to follow the learning with sleep than with any more active diversion. So far, this rule has not been demonstrated for meaningful material.⁴⁸ It is well known, however, that good or bad suggestions are especially effective if given just before going to sleep. Likewise, an experience which befalls an individual just before he becomes unconscious from intoxication or a blow often has lasting effects.⁴⁹ Apparently, some if not all learning is helped when followed by unconsciousness; because, among other reasons, when one is unconscious, contrary reactions are dissociated.

In general, learning is helped by integration and is hindered by weakness, fatigue, intoxication, and other conditions that make for dissociation in the potential learner. Nevertheless, learning which occurs despite dissociation is often intense. In great weakness, for example, or in extreme fear, whatever impression does get into the subject's disorganized mind is likely to leave its mark. The hypnotized subject, also, is profoundly impressible by whatever suggestions are not too contrary to his make-up. Leuba (1941) showed that adults develop conditioned reactions to simple stimuli much more readily in hypnosis than they have been found to do when awake. Thus the dissociated individual seems unable to criticize and "assimilate" normally what experiences he has; they loom too large in his life. A part of the explanation may be that his other reactions, which should give perspective, are dissociated.

Many abnormal cases and their therapy lead us to conclude that noninterference is favorable to learning; but that any noninterference which comes from dissociation is likely to make for learning which is peculiarly narrow and unadaptive, not well integrated.

Active motivation. Another essential condition for learning is active motivation. Thus, it is not the wholly satisfied animal but the hungry

⁴⁷ James J. Gibson and Gertrude Raffel, *J. Gen. Psychol.*, 1936, 15:114.

⁴⁸ Cf. PA 7 842, 5657, 10 4383, 13 2419.

⁴⁹ Cf. Leonard, *op. cit.*, 16, 65, 104, 239-240, 280, 421; Taylor, *Readings*, 704-705; G. V. Hamilton, *Objective Psychopathology*, 1925, 124, 131-132 (Mosby).

animal that learns how to get food, the restless animal that learns the way out of a problem box, and the animal disturbed by a given object that learns to avoid that object. Likewise, it is the needy, the anxious, or the despairing person who learns how to earn a living; the curious person who learns a new path or game; and the altruistic or idealistic one who learns a new democratic technique or progressive program.

A primary factor in active motivation is *strength of excitation*. For example, rats learn to fear an object through receiving from that object a single, strong shock;⁶⁰ and other animals and men form fears and divers stereotyped reactions from intense experiences.

The role of strong excitation is clear in some cases of greatly reduced educability; for example, in Korsakow's psychosis, a more or less chronic condition caused usually by alcoholism. A typical Korsakow patient is introduced to someone and shakes hands. A few moments later he does not remember the new person and, upon being introduced again, reacts as though it were the first time. If, however, a new person's hand conceals a pin that pricks the patient, upon being introduced to him a second time the patient bows and speaks as before, but does not shake hands.

A special form of active motivation is *affective motivation*. Experimental studies indicate that, within limits, pleasant and unpleasant reactions are about equally easily learned; but that reactions which are *decidedly* pleasant or unpleasant are learned more easily than are those which are indifferent or only mildly affective.⁶¹

Examples of affective learning include, apparently, the fixation of certain allergies through autonomic involvement under emotional stress;⁶² the fixation of modes of erotic stimulation, and of types of persons beloved; the availability of emotionally toned words after other words have become dissociated; and the fixation of emotional reactions themselves. As Spinoza said: "The force of any passion or emotion can

⁶⁰ Cf. Bradford B. Hudson, *Psychol. Bull.*, 1939, 36:518.

⁶¹ Cf. Hulsey Cason, *Arch. Psychol.*, 1932, No. 134, 83 circa.

In another study, Arthur Silverman and Cason found pleasant words somewhat better recalled and recognized than unpleasant words; but how much this difference derived from the conditions of the experiment is not clear. In this study, the recall and recognition of pleasant words and unpleasant words excelled that of indifferent words by more than appears from the data as presented, since the authors did not take account of the longer time the subject spent in grading the indifferent words at the outset. (*Am. J. Psychol.*, 1934, 46:315-320.)

⁶² Cf. H. Flanders Dunbar, *Emotions and Bodily Changes*, 1947, 408-409 (Columbia Univ. Press).

overcome the rest of a man's activities or power, so that the emotion becomes obstinately fixed to him."⁵³

In many cases of learning, *converging motivation* is important. Thus, an optimistic temperament predisposes to learning pleasant things, and a pessimistic temperament, to learning unpleasant things.⁵⁴ Interest helps learning because, often, interest means converging motivation. Relevant attitudes help likewise. Congenial context, meaning, organization, pattern, and rhythm represent relevant sets, which also provide converging motivation. Many striking cases of learning through converging motivation are obsessive compromises. Examples are a sadism that derives from sexuality and revenge; a masochism, from sexuality and self-punishment; and a war neurosis, from patriotism and fear.

A special type of converging motivation comes from strong reaction. Whatever its causes, strong reaction excites various receptors in the same organism. The resulting excitations may converge upon the continuing original motivation to the given reaction, and so aid the learning of that reaction.

Incidentally, these excitations, like any others in the given situation, may become conditioned cues for the learned reaction.

Converging motivation comes also from learning a given pattern together with other patterns that play into that one. Examples are learning a speech through associating its parts not only with each other but also with the time and place where it is to be given; learning to walk a tight rope through learning both how to walk the rope and how to disregard distractions in the environment; and learning the year of the French Revolution through associating that year with the Revolution itself, with related events which happened the same year, and with previous and subsequent trends. To organize and make meaningful any learning is to enlist convergent motivation.

Perhaps a special form of affective, converging motivation is *effect*. This is the principle that a satisfying outcome strengthens and a non-satisfying outcome weakens the pattern that gave rise to it. For example, a dog that is fed when he goes to the porch but is punished when he goes to the pantry learns to seek the porch and to avoid the pantry. The principle seems intelligible psychologically if we take it to mean that the outcome represents consequent excitation which strengthens whatever reaction is *practiced*. A satisfying reaction is strengthened

⁵³ *Ethics*, IV, vi. For examples, cf. Hamilton, op. cit., passim.

⁵⁴ Cf. Hulsey Cason, loc. cit., 73; also Werner Wolff, *The Expression of Personality*, 1943, passim (Harper).

because it is practiced and not inhibited. A dissatisfying reaction, on the other hand, is weakened only in the sense that it is inhibited as much as possible while its opposite, the reaction against that dissatisfaction, is practiced.

So interpreted, the principle of effect is supported by considerable experimental and practical evidence.

Rats allowed to enter only one tunnel a day, and fed when they entered a particular tunnel, learned to enter only that tunnel. Rats rewarded with considerable food for pressing a bar retained that habit much better than rats rewarded with less food. Rats rewarded for arbitrarily chosen, irrelevant acts, such as washing their faces, learned to perform those acts under the given circumstances. Dogs that had learned to avoid shock from a grid by raising a paw when a bell sounded, and were fed upon raising the paw correctly, continued to raise the paw every time the bell sounded, without further shocks, so long as thus fed.

Twenty human subjects were divided through practice trials into two paired groups, and then were given tasks of learning nonsense syllables before and after sorting cards. Immediately after each sorting, the members of one group were told, falsely, that they had succeeded in sorting the cards well; while the members of the other group were told, likewise falsely, that they had failed to sort the cards well. Each group learned syllables better after sorting cards than before; but the "success" group improved more than the "failure" group in this learning. Also, during the trials the "success" group sorted the cards more and more efficiently, while the "failure" group sorted them less and less efficiently.

A seven-month-old girl, when sitting up unsupported for the first time, fell backward and struck the back of her head on a rail. After crying for a moment, when set up again she fell back again; but this time she held her head forward as she fell. "The burnt child avoids the fire."

The child rewarded for suffering learns to endure suffering, and even to seek it. The adult, similarly, who thinks he is best off when ill, learns to be ill, within limits, through suggestion.⁵⁵

⁵⁵ PA 8 3456, 14 5877; Irving Lorge, a paper read before the A. A. A. S., December 29, 1933; PA 13 2407; Robert R. Sears, *Psychol. Bull.*, 1939, 33:744; cases cited under Masochism, in Chapter 6; Morton Prince, in *Text-Book on Nervous Diseases* (Francis Xavier Dercum, ed.), 1895, 556-611 (Lca); H. L. Hollingworth, *Abnormal Psychology*, 1930, 385-389 (Ronald). Cf. also PA 8 4947; and Edwin R. Guthrie, *Psychol. Rev.*, 1940, 47:138 circa.

True, in a number-guessing experiment in which each subject knew that the numbers would be changed at random after each round, responses which he was told were right

An apparent exception to effect as an aid to learning is any memory of the unpleasant; for example, memory of a bee sting received on a certain doorstep. This memory, however, may be less of the unpleasant than of the recoil from it and of the cues for that recoil. Still, there are unpleasant memories of pain, of bad news, and so on; and some of these memories bring with them much of the actual "feel" of the original experience. It seems likely that such unpleasant patterns were well established through strong, affective excitation; also that, through the principle of effect, the individual learned something worth learning about the troublesome situation.

Another apparent exception to effect as an aid is the fact that, under certain conditions, interrupted tasks are remembered better than completed tasks.⁵⁶ Here it would seem that the interrupted tasks involved accumulated excitation, and that, through effect, the individual learned something about meeting the frustrating situation.

Although some think otherwise, another factor in learning appears to be *frequency*; provided we mean frequency of the reaction to be learned. Thus, rats that have learned to get their food by pressing a lever retain that response better if allowed to press-and-eat often than if allowed to do it seldom (S. B. Williams, 1938; Fitts, 1938). Common observation suggests that human beings likewise retain learned patterns better if they practice those patterns often rather than seldom.

True, there are many failures to learn despite apparent frequency. Conditioned reactions that are not "reinforced" by frequent rewards soon wane through "experimental extinction." Rats that are rewarded every time they run out either path of a T maze tend to avoid following the same path twice in succession (Heathers, 1938). A boy who has been made to hang up his coat many times may still fail to hang it up when not told to do so. Indeed, bad habits are sometimes eliminated by, supposedly, repeating them; for example, the habit of sniffing may be overcome in some cases by deliberately sniffing, again and again, while thinking that this is what is not to be done in the future.⁵⁷

were repeated no more often than responses he was told were wrong; and neither sort of response was repeated more often than chance would lead us to expect. Perhaps the explanation is, as Wallach and Henle suggested, that no learning motivation was introduced; or perhaps the subject was so baffled at never sensing *how* he could tell the right number that mere luck was never satisfying (PA 15 2952, 16 1862).

Cf. also PA 11 2204; Robert R. Sears, *Survey of Objective Studies of Psychoanalytic Concepts*, 1943, 78-89 (Soc. Science Research Council); J. McV. Hunt, *Personality and the Behavior Disorders*, 1944, 1:79-82 (Ronald); PA 14 3481, 23 4634, 4643.

⁵⁶ Cf. Kurt Koffka, *Principles of Gestalt Psychology*, 1935, 334-341 (Harcourt).

⁵⁷ Cf. Knight Dunlap, *Habits*, 1932, 194-231 (Liveright).

These seeming exceptions, however, are perhaps explained by other factors. Unreinforced conditioned reactions are not just conditioned reactions, but are complicated with reactions toward some more satisfactory situation. Following a plain path in itself may leave a rat restless to try a new path; and following a plain path that is rewarded may leave the animal restless to try a new path likewise, when it has experienced no path without the same reward. Hanging up a coat when told to do so is quite different from hanging it up when one wishes and may be a reaction less of hanging up the coat than of teasing some orderly obstructionist. Deliberate, analytical, self-directing sniffing is a very different total reaction from ordinary sniffing; and practicing the deliberate reaction brings in conscious effect and ideomotor elements which convert the habit into a controllable skill.

It is hard to see how sheer frequency of reaction, reaction uncomplicated by some different, disturbing or satisfying reaction, can weaken the pattern practiced.

Admittedly, we do not know just how frequency works. Perhaps, indeed, frequency helps learning only in so far as it is not strict repetition but involves somewhat different connections at different times, including new conditioners,⁵⁸ so establishing many pathways which converge upon and readily activate the specific pattern. Nevertheless, until the contrary is demonstrated, it seems practical to assume that frequency aids learning.

Joining of connections. Learning requires not only educability, non-interference, and active motivation, but also, we gather, joining of connections. A connection basic to the experience of bell becomes joined to a connection basic to the experience of food, so that the bell comes to link with and thereby mean food. Similarly, one learns that "*arbor*" means "tree," that a formerly bothersome noise means that one continues to work, that a given situation requires a novel alliance of responses, and that a monkey and a man are both primates. Aristotle taught that such linkages occur through similarity, contrast, contiguity in space, or sequence in time. Nowadays, it seems that we may think of the linkages as occurring when the connections basic to the objects linked join and become one pattern.

From this point of view, similar things, like wheat and barley, become once associated as their connections join through, let us say, those of

⁵⁸ Cf. Guthrie, *op. cit.*, 97-100. Guthrie would substitute this suggestion for the notion of frequency.

the concept "grain"; contrasting things, like hot and cold, through those of the concept "temperature"; things contiguous in space, like a horse and its rider, through connections which are basic to those two objects and are aroused together; and sequent things, like a bell followed by food, through connections which are basic to them and which, though aroused in a sequence, likewise meet and become one pattern.

Whether or not the foregoing factors explain the more striking failures to learn, such failures occur in various mental diseases. One patient, who was obsessed over an infantile incident, talked about it to Erickson for five hours. Beginning the next day, upon every opportunity she begged him for an interview, saying that she had something important to discuss. After a week of this, Erickson asked her what she wanted to talk about and learned that it was the same infantile incident. He explained that they had already discussed it and told her when they had discussed it. She denied flatly that they had ever done so. He showed her the record and quoted her statements. She explained that he had known that she wanted to talk with him about the incident; evidently he had been thinking about it himself; and she was astonished to find how exactly his statements expressed her own unexpressed thoughts. She concluded that he must let her talk with him about it.⁵⁹

Questions of theory. This survey of learning leaves various theoretical questions unanswered. To attempt to answer them, however, would require a systematic theory of learning, which is beyond the scope of this book.

Retention

Retention is preservation of learning.

Retention as we know it depends upon the nervous system. Disease or injury of this system may obliterate learning that has occurred; though it is often impossible to tell whether the learning is actually destroyed or only inhibited or dissociated.

A well-educated man about thirty years old became seriously ill. At the end of the illness, he was found to have forgotten all his acquirements, even the names of common objects. When his health was restored, he began to learn like a child. "After learning the names of objects, he was taught to read, and then began to learn Latin. One day, in reading his lesson with his brother, who was his teacher, he suddenly stopped and put his hand to his head. Being asked why he did so, he

⁵⁹ Communicated by Milton H. Erickson.

replied: 'I feel a peculiar sensation in my head; and now it appears to me that I knew all this before.' From that time he rapidly recovered his faculties."⁶⁰

In a subject studied by Liebman, an accidental blow on the head during a hypnotic demonstration blotted out the subject's memories for many facts, including his own name and particularly the events *after* the blow. All of these memories were reinstated through further hypnosis.

A minister by the name of Hanna, studied by Sidis and Goodhart, was knocked unconscious in a driving accident. When he again became conscious, he seemed mentally like a new-born infant. He did not know how to grasp, eat, walk, or gesture, and evidently knew nothing of objects, food, persons, words, space, time, self, and not-self. He learned fast, however, and within a few weeks was able to enter into daily life much like a normal person. Still, he remained ignorant of his former life.

Six weeks after the accident, he reported having two kinds of dreams, one kind in which the pictures were "weak" and would not come back easily, and another kind in which the pictures were "clear" and came back as though they were present. Although he did not recognize them, the clear dreams were found to reproduce experiences he had had before the accident. He even dreamed and reported, as strange to him, names of common objects, such as snow, also proper names and conversations, which other persons knew he had experienced. In several light hypnoses, also, he reported bits of what he had known. Early on the second morning after he had begun to tell his dreams, Hanna was sleeping so restlessly that, without waking him, he was asked to tell what was troubling him. His answers showed that he was reliving a hard experience rescuing a sick woman from a desolate area. He also told of other persons he had known in those years. About ten days later, Hanna was moved from his village to New York City. After a stimulating evening there, he awoke in the small hours remembering his life before the accident and nothing subsequent to it, as his conversation showed. After going to sleep again, he awoke once more as the post-accident personality, not remembering the early-morning conversation about his former life. Eventually, through systematic excitation of his earlier interests and memories, the pre-accident personality was fully revived and the post-accident personality was synthesized with it.

A patient who had been drugged, hit on the head, and left unconscious in a ditch was unable to recall more than that he had been "taken for a ride" and had been treated in some hospital. Through profound hypnosis, Erickson got this patient to relive the entire incident, includ-

⁶⁰ Adapted from Forbes Winslow, as quoted by Th. Ribot, *Diseases of Memory*, 1882, 89-90 (Appleton).

ing two periods of unconsciousness, and to give the details of his mistreatment, rescue, and hospitalization. Many of these details, including some which had occurred when he was badly confused by the drug and the blow, were subsequently verified.⁶¹

Does retention in an intact nervous system ever fail? For this question there is no final answer, since our only proof of retention is revival of the learned reaction, and revival may fail because the learned reaction is not activated or is not disinhibited. It seems reasonable to suppose, however, that retention does fail with time, except, perhaps, when especially repressed or dissociated. We shall return to this view when we discuss Forgetting.

Recall

Definition of recall. The term "recall" is often limited to conscious recovery of memories. Such recovery of memories, however, is well named "conscious recall" or even, in some cases, "recognition." Moreover, the automatic or subconscious revival of memories is highly important. It therefore seems preferable to use the term "recall" for automatic as well as for conscious revival. *Recall is the revival of a memory.*

Mechanism of recall. Apparently, recall implicates at least an essential part of the original reaction that established the memory. In some cases, recall reinstates overt movements made during the original learning, and seems, indeed, to depend upon those movements. Thus, material learned by reading with frequent eye movements may be recalled with frequent eye movements (Ewert, 1933).

Aids to recall include many of the aids to learning. Noninterference; excitation which is strong but not so strong as to arouse reactions that conflict with the recall; affective motivation, when accordant with the reaction to be recalled; and converging motivation, like wishing to recall for several reasons, or being presented with several reminders;⁶² all aid recall. The role of noninterference is suggested by the frequent failure of recall when there is interference; for example, when one cannot recall "Timm" because one has "Tidd" in mind, or when one cannot recall a fright because a fixed idea of courage represses it. The role

⁶¹ Marvin Liebman, *J. Abn. Psychol.*, 1941, 36:103-105; Boris Sidis and Simon P. Goodhart, *Multiple Personality: An Experimental Investigation into the Nature of Human Individuality*, 1905, 88ff. (Appleton); Milton H. Erickson, *Arch. Neurol. and Psychiat.*, 1937, 38:1282-1288.

⁶² Cf. PA 15 1479, 11 5557.

of noninterference is suggested also by the ready recall of many inhibited memories when the interfering reactions are gotten out of the way through sleep, emotion, suggestion, or various other conditions.⁶³ In actual cases of recall, it is not always possible to isolate these several aids.

"One morning I was whistling to myself the air 'In Sweetest Harmony' from *Saul*. Jones heard me and said:

"Do you know why you are whistling that?"

"I said I did not.

"Then he said: 'Did you not hear me, two minutes ago, whistling "Eagles Were Not So Swift"?"

"I had not noticed his doing so, and it was so long since I had played that chorus myself that I doubt whether I should have consciously recognized it. That I did recognize it unconsciously is tolerably clear from my having gone on with 'In Sweetest Harmony,' which is the air that follows it."⁶⁴

In the 1890's, a man between 60 and 70 years old was found in a dazed condition and was taken to a state hospital. He complained of pain in his forehead. When he was fitted with glasses, his headache disappeared and he became rational. Still, he could not remember his past life. He did not know his name, birthplace, parents, native land, occupation, or whether he had a wife and children. Upon his forehead was a long scar which he could not explain. Soon he learned to read again. While reading about the Civil War, he recognized the name of his old commander and thus realized that he himself had been in that war. He did not know Grant and Lincoln, however, until he saw their pictures and read of them. The name of his commander reminded him that he had been knocked off a moving train by a railroad bridge as he was coming home from the war. This explained the scar upon his forehead. He remembered also that a physician had been kind to him, and that he had been cared for by Quakers. He was taken to the dispensary where he proved to be expert in handling drugs. From a label upon a box he recognized the name of a town in Germany, and associated with it the name of another town which was his birthplace. He knew that the name under which he was committed to the hospital was not his true name.⁶⁵

Tait reported that a clergyman had conducted services normally for a dozen years until, one Sunday evening, as he was leading the Lord's

⁶³ Cf. PA 14 3492.

⁶⁴ Samuel Butler, *Notebooks*, 1914, 65 (Kennerly).

⁶⁵ Abstracted from a case of William A. White's described by F. W. Colegrove, *Memory: An Inductive Study*, 1900, 118-119 (Holt).

Prayer, he came to the word "Heaven" and could not recall the rest. Upon consulting a psychologist, the same word brought back a harrowing experience with a Sopwith Camel plane, some 14 years before, when he was an aviator in World War I. Many of these machines had gone into fatal nose dives outside of the actual fighting. Since no one seemed to know why they did so, he set out to find the cause. He went up some 20,000 feet and put the machine into a nose dive. When he brought the stick back to pull the machine out of the dive, instead of behaving as other machines would this one started to turn upside down. He was not strapped in, so was thrown forward toward the instrument board. As a result, the stick was thrown forward and the machine righted itself. He had just missed being thrown out or crashing with his machine.

From this source, after 14 years, came the break in his ritual. Just what caused the break was not discovered. Tait suggested that it might have been the lighting of the church, the tone of the organ, or some chance remark heard by the subject before he went into the pulpit. The trouble did not recur.⁶⁶

It is often assumed that the pleasant is recalled more readily than the unpleasant. When the unpleasant is repressed, this must be true. When the unpleasant is not repressed, the studies of affective motivation in learning, cited above, show that the strongly pleasant or unpleasant is recalled more readily than the mildly pleasant or unpleasant or the affectively indifferent. The general question whether the pleasant is recalled more readily than the unpleasant is complicated by the fact, remarked by Hilgard, that sometimes the unpleasant in the learning is the thrillingly pleasant in the recalling⁶⁷—we suppose because some further reaction, such as pride, enters in.

Abnormalities of recall. The names for the abnormalities that follow are current in such varying senses that we shall take each in what seems to be its most convenient sense. The important roots, "a-," "hypo-," "hyper-," "para-," and "-nesia," are explained in the Introduction to Terms.⁶⁸ Apparently, each of these abnormalities may be more or less organic or functional or both.

Amnesia is abnormal inability to recall. This definition excludes so-called amnesia of impression, which is really a failure to learn. The

⁶⁶ Abstracted from William D. Tait, *J. Abn. Psychol.*, 1933, 27:465-466.

⁶⁷ Ernest R. Hilgard, a lecture, April 4, 1941.

⁶⁸ Cf. 624 ff., below.

definition includes anterograde amnesia, that is, amnesia for a period immediately after shock or any kind of stress; retrograde amnesia, for a period immediately before stress; general amnesia, for much if not everything prior to the present moment; and what we may call special amnesia, for particular periods or topics, such as the early years of one's life, the time spent in a particular town, all about some one person, particular words, all spoken words, a whole language, or any special skill. These amnesias are often markedly incomplete; for example, one man became amnesic for how he had learned shorthand, but not for the shorthand itself.⁶⁹ Various examples of amnesia appear in other connections in this book.

Hypomnesia is abnormally incomplete recall. Like amnesia, hypomnesia may be anterograde or retrograde, and general or special. Moreover, in any of these types, in some cases the subject recalls the memories faintly but with their normal meanings; while in some other cases the subject recalls the memories clearly but without their normal meanings.

Of the latter kind of hypomnesia, Janet said that the memories "are only empty reports, with no imagery or attitudes surrounding them, calling forth no feeling of joy or of sadness; and arousing no interest or desire for action, in the way of either drawing them out or cutting them short. Sometimes these reports are not even accompanied by belief, and the patient cannot affirm that the memories have had a real existence in the past." Whether or not the patient believes the memories, he always misplaces them far into the past. "A patient, who had come out of a sanatorium only a week before, said that he had come out of it 25 years ago, and similarly referred the birth of his last child, two months old, to 25 years ago." Janet explained such memories through lack of the interoceptive reactions which normally "surround and complete our perceptions and reports and give each its particular flavor and degree of reality."⁷⁰ Prince would emphasize the dearth of various images which should make the memories significant. Either view suggests some basic failure of integration.

Hypermnnesia is abnormally complete recall. Thus defined, the term hypermnnesia does not apply to mere high ability to recall—such ability is not abnormal but is superior. The term applies to recall which is more

⁶⁹ Cited by C. W. Bray, in Boring, Langfeld, Weld, and collaborators, *op. cit.*, 363. Cf. M. Allen Starr, *J. Philos.*, 1904, 1:40-41; Landis and Bolles, *Textbook of Abnormal Psychology*, 1950, 479-497 (Macmillan).

⁷⁰ Adapted from Pierre Janet, in A. A. Roback (ed.), *op. cit.*, 145-146.

complete than integrated. Even general hypermnnesia is not well integrated with the personality as a whole.

As Morgan pointed out, general hypermnnesia is common during periods of fever or emotional stress, when countless details ordinarily forgotten flood into consciousness.⁷¹ Special hypermnnesia is obviously not well integrated. To recall irrelevantly to the present situation a language not used since early childhood, or a scene which is unimportant now, amounts to abnormal redintegration.

Various cases suggest that hypermnnesia is to be explained by some excess of the factors which we have supposed make for any learning and recall. For example, on the border between superior recall and hypermnnesia, "A man who in other respects had a very poor memory was devoted to reading time tables, and knew nearly every time table in Great Britain."⁷² Another "memory expert could recall the order of a 52-card deck of shuffled cards after 20 minutes of study. A group of college students were able to duplicate this performance after an average of 5.25 practice periods of 20 minutes each. Two students did it at the first sitting and twelve at the third."⁷³

One of Janet's patients, a man 30 years old, suffered from almost hallucinatory memories of a six-month stay in a foreign city. The memories came back involuntarily, "accompanied by many affirmations, many images, and very powerful feelings," almost as though the original scenes were present. When, however, the man recalled the same memories voluntarily, they came back reduced, faded, and correctly felt as past. Thus they were abnormally strong only when functioning in a dissociated way. Janet showed that when the man was in the foreign city he was elated, and he found stimulating experiences there which he enjoyed. On the other hand, when he was suffering from the hypermnnesia he was depressed, and he avoided stimulating experiences. Evidently, in the former situation he was in good condition to establish new memories; but afterwards, when those memories came back too vividly, he was not in good condition either to establish new memories or to recall the former ones normally.⁷⁴

Paramnesia is abnormally mistaken recall. It covers mistakes of content, rather than of clearness, both of recall and of recognition. Since it is such a broad term, we merely mention it here with its congeners.

⁷¹ John J. B. Morgan, *The Psychology of Abnormal People: With Educational Applications*, 1936, 193 (Longmans).

⁷² Adapted from F. W. Edridge-Green, *Memory and Its Cultivation*, 1897, 118-119 (Appleton).

⁷³ Adapted from Bray, *op. cit.*, 343.

⁷⁴ Janet, *op. cit.*, 141-148.

Obsessive memory, as the name implies, is abnormally persistent recall.

An everyday form of such memory is called perseveration, a term applied also to other processes than memory. As applied to memory, perseveration means the way a just-completed journey, tune, or other experience sometimes stays in mind for hours, almost as though the objective occasion remained. Perhaps everyone has had this experience upon occasion. Another common form of obsessive memory is abnormally recurrent memory for any experience, whether recent or not.

Seriously obsessive memory is likely to be either repressive or compulsive. The repressive type is welcome predominating over unwelcome memory; which means that the welcome memory, ordinarily, is conscious, and the unwelcome one repressed. An example is continually recalling a good deed done, thereby "forgetting" a bad deed or tendency. The compulsive type, on the other hand, is unwelcome so predominating over welcome memory that, ordinarily, the welcome is kept down. An example of compulsive obsessive memory is any memory for a bad experience which continually displaces more welcome thoughts. In some cases the repressive and compulsive types oscillate; and in some they produce compromise obsessions.

Obsessive memory often involves hypermnesia. Not all obsessive memories, however, are hypermnesic; many obsessive memories are not abnormally complete, but are even hypomnesic. Also, not all hypermnesia is obsessive memory; some hypermnesic memories are only abnormally complete, not persistent.

Stereotyping of memories is subconscious reshaping of memories as recalled to conform to stock ideas and expectations.

Thus, as Bentley said, "When an acquaintance strikes us as 'tall' or as 'homely' or as 'awkward,' our declining memories of him are likely to be changed to conform to the stock 'tall' or 'homely' or 'awkward' man. A part of our surprise upon noting that a long-absent acquaintance is not exactly as we had remembered him is due to the application of these verbal epithets which are apt to fit too loosely the individual case. Again, there is some evidence that our simpler memories at least (as to colors and grays) suffer modification through similar perceptual experiences subsequent to their registration. If that is true, then a remembered medium-gray surface would tend to grow lighter when the memory-interval was filled with light-gray perceptions and darker when filled with dark-gray perceptions."⁷⁵

⁷⁵ Madison Bentley, *The Field of Psychology*, 1924, 258-259 (Appleton).

Hanawalt found that visually perceived figures are recalled to conform to typical objects, to other figures in the series, and to verbal formulations. In some cases, a figure that has not been recalled for some time is recalled as two different figures, each embodying a different feature of the original.⁷⁶

As for the mechanism of stereotyping, various studies suggest that the "stock ideas and expectations" toward which the stereotyping occurs include not only the social stereotypes, pointed out by Lippmann, and other ideas and expectations acquired by the individual, but also intrinsic perceptual tendencies. Moreover, from many observations in the abnormal field, and from Hanawalt's work, it appears that the reshaping occurs not in the original memory paths or traces, so far as these have been retained, but in the memories as recalled, through combining some of their paths or traces with those of further memories and impressions while recalling.⁷⁷

Warping of memories is subconscious reshaping of memories as recalled to conform to present wishes. This definition excludes lying, in that lying is conscious. To be sure, "subconscious" and "conscious" are relative terms; often what seems subconscious turns out to be conscious, and vice versa; and sometimes the conscious becomes subconscious through repression. In extreme cases, however, it is fair to say that the subject is not lying but shows warping of memories. A child who wishes his family were well-to-do, and has daydreamed many times that they were well-to-do, may recall their former abodes, chattels, and trips as more luxurious than these things really were. A decrepit old man may remember his youth as more vigorous than it was. A child with an emotional problem, in telling the story of a puppet show he has seen, is liable to reshape the story to fit his problem.⁷⁸ Adults, similarly, often reshape memories according to present problems, which embody present wishes.

Subconscious fabrication is subconscious forgery of memories. It differs from warping only in drawing less upon actual memories and more upon imagination; in other words, more upon learned elements without regard to their historical contexts.

Subconscious fabrication appears in many abnormal persons who feel that they need memories which they do not have; for example, in

⁷⁶ Nelson Gilbert Hanawalt, *Arch. Psychol.*, 1937, No. 216.

⁷⁷ Cf. Walter Lippmann, *Public Opinion*, 1922, 79ff. (Macmillan); Hanawalt, *loc. cit.*; Taylor, *Readings*, 430-431, 474-477, 525, 538, 541, 572, 596; PA 16 935.

⁷⁸ Lauretta Bender and Adolf G. Woltman, *Am. J. Orthopsychiat.*, 1936, 6:347.

a senile person who cannot recall what he has just been doing, but feels that he ought to recall, so thinks of something to fill in the gap.

Abnormal symbolizations—bizarre, recurrent visions, neologisms (coined words), obsessive handwashing, and the like—are abnormalities of recall, in that all symbolizations derive from memories or elements of memories, and abnormal symbolizations revive such materials in inappropriate ways. This heading overlaps several of the foregoing abnormalities and includes all abnormalities of thought, since thought is essentially symbolization. Abnormal symbolizations and abnormalities of thought are so important in themselves, however, that we must take them up in later chapters.

Through these various abnormalities, recall is abnormally blocked or distorted, at times in all normal persons, and more extensively in many abnormal persons. As Bentley observed, "The wonder is that the bodily residues of perception, being various and multitudinous, do not constantly cross and commingle and so cancel all possibility of the dated and individualized memory."⁷⁹

Recognition

Definition of recognition. *Recognition is awareness of an object as familiar.* This definition allows for awareness of stimuli, material things, external symbols, personal feelings, ideas, and any other objects as familiar. The definition also allows for various degrees of recognition, from feeling or knowledge that an object is slightly familiar to knowledge that it is a particular object whose relevant history is clearly recalled.

Mechanism of recognition. Recognition seems to implicate the mechanism of recall, i.e., redintegration of at least an essential part of the original reaction, but more fully and with more integration. In particular, the original reaction involved in recognition seems to include both interpretations and active motives which occurred with the original reaction.⁸⁰ Apparently, recognition is aided by whatever aids integration about the specific object to be recognized.⁸¹ Since a present object naturally motivates integration about it, recognition of a present object is often easier than recall of an absent one.

⁷⁹ Loc. cit.

⁸⁰ Cf. PA 6 4892.

⁸¹ Cf. PA 15 2680; Hanfmann, Rickers-Ovsiankina, and Goldstein, *Psychol. Monog.*, 1944, 57:No. 4, 16-19, circa.

Abnormalities of recognition. These abnormalities parallel those of recall, also various abnormalities of perception, thought, and other functions that we shall consider later. Here are a few examples.

One hypnotizes a normal person and tells him that a certain toy will bring him good luck, also that he will not remember what went on during the hypnosis. When he awakens, an observer shows him several toys and asks him to take one. He takes that one which the hypnotizer had said would bring good luck. When the subject is asked why he chose that one, he replies: "No reason. You asked me to take one, and I happened to like this one."

A patient unable to recall the name of the doctor to whom he has been introduced may yet choose that name, "as a guess," out of several that are presented to him.⁸²

In certain cases of hypomnesia, as we have seen, the patient recalls some experiences of his own, but fails to recognize them as anything that actually happened. In other cases he recognizes recent experiences as his own, but thinks they occurred long ago.

A common experience is some "feeling of unreality" or "depersonalization." As Titchener observed, "There are moments of unusual depression or lassitude or fatigue, when the whole world about us seems . . . new and strange as a shadowy dream-world, where things are pictures, and men are pictured automata, and we hear and contemplate our own voice and action as foreign and indifferent spectators. Here the normal context and the normal feelings of familiarity are entirely lacking; the kinaesthetic and other organic reactions have lapsed; the cortical set that adjusts us to a world of external reality has disintegrated."⁸³

Another common experience is the feeling that some new scene, person or other object is familiar. This is called *paramnesia* or, more specifically, *déjà vu*. It seems to derive from familiar elements in the present situation which reintegrate a reaction of familiarity to the whole. In some cases the familiar elements come from dreams which the subject has had that happen to fit the present situation.⁸⁴

Abnormal people experience *déjà vu* in more serious forms. For example, "An educated man was seized at the age of thirty-two with a singular mental affection. If he was present at a social gathering, if he visited any place whatever, if he met a stranger, the incident, with all

⁸² Cf. PA 6 2352, 4405.

⁸³ Edward Bradford Titchener, *A Text-Book of Psychology*, 1910, 425-426 (Macmillan). Cf. also L. Dugas, *J. de psychol.*, 1912, 9:No. 1, 38-47; August Hoch, *Psychol. Bull.*, 1905, 2:233-241; Frederic H. Packard, *J. Abn. Psychol.*, 1906, 1:69-82.

⁸⁴ Cf. John Frederick Dashiell, *Fundamentals of General Psychology*, 1937, 433 (Houghton Mifflin); Taylor, *Readings*, 591; PA 20 748.

the attendant circumstances, appeared so familiar that he was convinced of having received the same impressions before, of having been surrounded by the same persons or the same objects, under the same sky and the same weather. If he undertook any new occupation, he seemed to have gone through with it at some previous time and under the same conditions. The feeling sometimes appeared the same day, at the end of a few moments or hours, sometimes not till the following day, but always with perfect distinctness."⁸⁵

Normal persons occasionally, and abnormal persons more often, recognize things and persons mistakenly. An individual with a political bias not only shows warping of memories in recalling; but, when various political statements are read to him, and afterwards he is asked to pick those same statements out of a larger number, he often "recognizes" the wrong statements, according to his bias.⁸¹ A senile dement "recognizes," at once, a new table as his grandmother's, a new house as the old homestead, a young stranger as a boyhood friend, and so on. A paranoid patient thinks a piece of waste paper is a royal commission, the janitor is a spy, and the postman is an ally whom relatives, doctors, and nurses keep from helping the patient.

Forgetting

Definition of forgetting. The term "forgetting" is often applied confusingly to divers processes. In earlier chapters, however, we have sought to distinguish different forms of inhibition and dissociation from what we called normal forgetting. Here we shall drop the adjective "normal" and assume that *forgetting is failure of retention*.

Data on forgetting. We need not dwell here upon the well-known curve of forgetting. It is interesting to note, however, that there are individual differences in forgetting as in learning and recalling pleasant and unpleasant experiences. According to a study of students' memories for their Christmas vacation, "optimists" tend to forget unpleasant experiences more readily than pleasant experiences; "pessimists," to forget the pleasant more readily than the unpleasant; and "indifferentists," to forget both kinds about equally. (More than half of the students were classified as optimists; though how far this classification was affected by social expectations is not clear.)⁸⁶

Rote material is said to be forgotten faster than meaningful material. If there is anything in the questions raised earlier about distinguishing

⁸⁵ A case of Arnold Pick's, described by Th. Ribot, *op. cit.*, 188-190.

⁸⁶ PA 5 104.

between rote and meaningful learning,⁸⁷ this may mean merely that forgetting is more obvious in less-well-learned than in better-learned material.

Learned material which has been protected from interference is often recalled so completely as to suggest that no forgetting has occurred. Perhaps most striking are cases in which the learned material has been thus protected through subsequence (i.e., learned last) achieved not merely through sleep⁸⁹ but through special dissociation.

"A lady was liable to sudden attacks of delirium, which, after continuing for various periods, went off as suddenly, leaving her perfectly rational. The attack often came on when she was in the midst of an interesting conversation; and on such occasions, as soon as the delirium had passed, she instantly recurred to the conversation, though she had never referred to it during the affection. To such a degree was this carried that she would even complete an unfinished sentence. On the next attack of delirium she would resume the subject of her former paroxysm."⁸⁸

"A youth, aged eighteen years, was struck insensible by the kick of a horse, his skull being depressed. After trephining the depressed bone he became sensible. His surgeon took advantage of the hole in the skull to press firmly on the exposed brain after asking him a question. As long as the pressure continued he remained silent, but the instant it was removed he replied, never suspecting that he had not answered at once.

"Another youth, aged nineteen, was made unconscious by the kick of a mare named Dolly. As soon as the depressed bone was lifted from his brain, he cried, 'Whoa, Dolly,' with great energy, and then stared about him in amazement, wondering what had happened to him. Three hours had passed since the accident. He was not aware that the mare had kicked; the last thing which he remembered was that she wheeled round her heels and laid back her ears."⁸⁹

"A man maintained that he had seen the seed sown in a particular field, and on passing it again three or four days after saw the reapers at work cutting down the corn. The interval of which he had thus lost the impression had been spent in a state of furious insanity, from which he had recovered sufficiently to form this notion but not to perceive its absurdity.

"A man had been splitting wood with a beetle and wedges to make a fence. At night, before going home, he put the beetle and wedges

⁸⁷ Cf. 236-237, above.

⁸⁸ Adapted from John Abercrombie (Abbott, ed.), *Inquiries Concerning the Intellectual Functions and the Investigation of Truth*, 1833, 231-232 (Collins and Brother).

⁸⁹ Adapted from Henry Maudsley, *The Pathology of Mind*, 1880, 8-9 (Appleton).

into a hollow tree, and told his sons, who had been at work in an adjoining field, to help him make the fence the next morning. In the night he became insane and continued so for several years, during which time he did not seem to think at all about his usual daily interests. After several years he suddenly recovered his reason. The first question he asked was whether his sons had brought home the beetle and wedges. They, being afraid to enter upon any explanation, only said that they could not find them; whereupon he rose from his bed, went to the tree, and found the wedges and the iron rings of the beetle, the wooden part being entirely mouldered away."⁹⁰

Mechanism of forgetting. From such observations, does it follow that all "forgetting" reduces to repression, or to interference, or to some form of inhibition or dissociation or both? In other words, is it true that retention never fails; that only recall fails whenever other learnings block, or the right cues do not reach, the memories in question?

While that is a possible interpretation, it seems improbable. Evidently, repression, interference, and the other processes mentioned do greatly affect learning, retention, and recall. Nevertheless, it seems possible that the extraordinary retention and recall noted in non-interference may derive partly from extraordinary learning, perhaps including subconscious rehearsal, which offsets the expected forgetting; and that, apart from such complications, retention fails, forgetting occurs, through neural resumption, that is, through the neural connections fading out with time, approaching the state they were in before the learning.⁹¹ Perhaps the neural resumption is never complete; and perhaps it is favored by other learnings, connections which, as it were, cross a given connection and help to obliterate it. Neither of these possibilities, however, means that all learning is preserved.

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⁹⁰ Adapted from Abercrombie, loc. cit.

⁹¹ Cf. Repression, in Chapter 9; Retention, above; T. H. Pear, *Remembering and Forgetting*, 1922, 164ff. (Methuen); Hanawalt, loc. cit.; PA 16, 3956.

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12

Acquired Patterns

The firmest line that can be drawn upon the smoothest paper has still jagged edges if seen through a microscope. This does not matter until important deductions are made on the supposition that there are no jagged edges.

Samuel Butler

A pattern, we said, is any reaction or system of connections thought to have a characteristic shape. Patterns are more or less integral structures of personality. Learning organisms develop acquired patterns. Human acquired patterns include conditioned reflexes, habits, constellations, sentiments, complexes, systems, disparate personalities, learned attitudes, conscience, and learned sets.

These several patterns are not sharply separated from one another; they are merely types out of a great variety of patterns.

Conditioned Reflexes

The simpler types of conditioned reactions are called "conditioned reflexes." The more complex types of conditioned reactions include many if not all of the acquired patterns that follow.

Habits

Habits we know as *well-automatized patterns, or higher units*, of striped-muscle reactions especially. James's famous chapter on "Habit" indicates the neurology, economy, importance, and management of habit.¹

¹ William James, *Psychology: Briefer Course*, 1892, 134-150 (Holt).

The studies of the course of general dissociation have shown that habits often survive more intellectual processes.²

Hanfmann, studying a man who had suffered a head injury, opened a box of matches before him to see if he could recognize it. The man showed no memory for the name or the use of what lay before him. Nevertheless, he took one of the matches and struck it several times on the box. When the match ignited he was amazed, then said "Match this!" and asked to keep the box.³

Constellations

A "constellation" is a convenient name for *any rather simple pattern of ideas*. Such a pattern is always centered in some object, whether concrete or abstract. Examples of constellations are rather simple patterns of ideas about the radiator in one's room; about a certain kind of cloud in the sky; about the town library; and about free trade. More complicated patterns we shall call "systems."

Constellations differ in affective tone, that is, in quantity and quality of hedonic and perhaps emotional accompaniment. Many constellations have comparatively little affective tone, while others have enough to be distinguished as affectively toned constellations. Of the latter group, those which are relatively well integrated with the rest of the personality we shall call sentiments, and those which are disparate, complexes.

Sentiments

What sentiments are. Common examples of sentiments are love for a child; hatred toward an enemy; disgust at a bootlicker; admiration for a hero; and devotion to a cause.

Sentiments are not mere conditioned reflexes or simple habits. Reflexes and simple habits do not themselves contain ideas, though often they are bound up with ideas and ideational patterns. Sentiments are relatively simple ideational patterns, hence are constellations. Unlike some constellations, however, sentiments are integrated with the rest of the personality and are affectively toned. For example, a sentiment of love for a person contains some ideas about that person, it neither conflicts with nor is dissociated from the rest of the individual who holds it but is integrated with the rest of him; and it is affectively toned. *A sentiment is an integrated, affectively toned constellation.*

² Cf. Chapter 10.

³ Hanfmann, Rickers-Ovsiankina, and Goldstein, *Psychol. Monog.*, 1944, 57:No. 4, 5.

A sentiment should be distinguished from a mood. A sentiment is a patterned constituent of the personality; it becomes active or inactive largely according to perceived or thought situations; and it implicates particular responses, like being kind to a person in ways suited to that person. A mood, on the other hand, so long as it lasts, is a general quality of the personality; it may be largely independent of situations; and it implicates general motivation rather than particular responses.⁴

Functioning. Evidently, sentiments are not active all the time. A sentiment may even function considerably without its affective tone. Thus, as Myers remarked, one may be said to love or hate a given person without experiencing "the sentiment feeling" of love or hate at that particular moment.⁵ Nevertheless, so long as a sentiment is a sentiment, it remains ready to function with its affective tone upon occasion.

The more excitants—stimuli, feelings, thoughts—associated with a sentiment, the more often it is likely to occupy the mind; and the more elaborate the sentiment, the more various and important reactions it is likely to engender.⁶

Sentiments, being integrated, function rather precisely and adaptively and are normally modifiable through learning. Their functioning illustrates normal redintegration.

Many an integrated, nonaffective constellation becomes a sentiment through gaining affective tone. For Pascal, propositions in geometry became sentiments. Perhaps less often, a sentiment becomes a mere constellation through losing affective tone. In more or less abnormal cases, some sentiments become complexes.

Complexes

The noun "complex" is often applied to divers patterns, including sentiments. There are, however, roughly distinguishable patterns to which this term may well be restricted.

Examples. The examples of abnormal redintegration in the preceding chapter include various complexes. For some of those complexes

⁴ Cf. PA 8 3142.

⁵ Charles S. Myers, *Brit. J. Psychol.*, 1922, 13:146.

⁶ Cf. Spinoza, *Ethics*, V, xi, viii, III, first appendix, and William McDougall, *An Introduction to Social Psychology*, 1908 and later editions, *passim* (I use), and *The Energies of Men. A Study of the Fundamentals of Dynamic Psychology*, 1932, 221-228 (Scribner).

the ideational elements were brought out; for instance, in the man who feared to go more than a few blocks from his home because he had been frightened when he was a child away from home.⁷

A twenty-four-year-old man had violent spasms of the throat whenever he drank cold water or bathed. Through hypnosis this pattern was traced to the following experience: When he was "very little, but old enough to wear trousers," one winter evening his uncle frightened him with stories about "something" that was going to come down from the tree in the yard and "get" him. The boy became thirsty. To get some water, and not to seem cowardly, he had to go to the pump in the pantry alone. The pump was by a double window which faced the tree. The anxious boy pumped off some water, filled his glass, and started to drink. The water was cold. While drinking, he perceived that he was caught by a nail projecting from his heel into the rug. Hastily pulling free of the rug, he noticed that the sink drain sounded like choking. He was afraid "The Thing" was under the sink and that it would pull him in so that he would choke. At that moment the wind whirled the rainspout around against the window with a bang. There, below two reflections of the lamp flame, the spout looked like a mouth. "The Thing" had come!—This impression, never resolved into its real elements until the hypnosis some twenty years later, assimilated relevant earlier frights and made up the complex.⁸

A returned soldier was generally "on edge." He could not concentrate well; he was unable to sleep more than six hours at a stretch; and he was subject about four times a week to a nightmare from which he awoke either choking his bedfellow or on the floor in some queer posture. He knew that the nightmare was about a time when he had been "cornered up" in battle in France; but he could not remember more than the beginning of the nightmare. He also could not remember more than the beginning of the original experience, which had covered some thirty-seven hours.

Through hypnosis, he recalled that experience. He had seen all but four members of his party killed and two of the survivors captured. Only he and his captain escaped. Soon he became separated from the captain and was gassed, wounded, hit over the head, and captured. Then he saw his captors attacked and had to witness more carnage. Finally he was rescued, given a dose of morphine, and taken to a hospital. He awoke there with no conscious memory for the thirty-seven hours.⁹

Many of the hypnotically induced conflicts, like the one between

⁷ Cf. 247-248, above.

⁸ Cf. Taylor, *Readings*, 707-708.

⁹ Cf. *ibid.*, 703-705.

sobriety and "drunkenness" cited earlier,¹⁰ derive from hypnotically implanted complexes.

Erickson hypnotized a young man and told him seriously that the following had occurred: One evening while visiting some friends, this young man met a girl to whom he was much attracted. While talking with her he complimented her upon her new brown silk dress and learned that she could not well afford the dress but had bought it to wear when applying for employment. He gave her a cigarette and took one himself. While smoking, he noticed that his cigarette had burned a hole in her dress. Unobtrusively he withdrew his hand and was relieved to see that the girl had not noticed the accident and that she held her own cigarette above the hole. The girl soon perceived the damage. She ascribed it to a spark from her cigarette. The young man tried to take the blame for having given her the cigarette; but she refused his apparent generosity. The next day, when he had summoned up enough courage to tell her the truth to save his self-respect, he found that she had left the city.

Through awakening the young man with amnesia for this "experience," Erickson allowed it to remain as a complex and did not clear it away (through hypnotic recall and explanation) for twenty-four hours. During that time, the young man gave disturbed reactions to a word-association test; he slept poorly; he awakened with a headache that persisted until the complex was removed in the afternoon; he had no appetite; he seemed unable to enjoy smoking; indeed, he gave away his cigarettes; and he was resentful and antagonistic toward his hypnotizer. He could explain none of these manifestations. He rationalized his attitude toward cigarettes, however, by saying that he "guessed" he was giving up the habit.¹¹

In another trance, Erickson "reminded" the same subject strongly of the following "facts": He, the subject, had been invited to dinner at the home of Dr. D., a man whom the subject knew and who was witnessing this hypnosis. There the subject noticed a pack of cigarettes lying behind the clock on one end of the mantelpiece. Dr. D. picked up the pack and explained at length that it was a sentimental keepsake of his marriage; it was a wedding present that he and his wife had received the day they were married, and they had preserved it unopened ever since. As Dr. D. went on with sentimental details, the subject was so bored that he paid little attention either to the story or to what Dr. D. did with the pack. Actually, Dr. D. returned the pack to the other end of the mantelpiece. Soon Dr. D. left him alone in the

¹⁰ Cf. 188, above.

¹¹ Abstracted from Paul E. Huston, David Shakow, and Milton H. Erickson, *J. Gen. Psychol.*, 1934, 11:68-70.

room for a few minutes. Finding that he had no cigarettes, he saw the pack on the mantelpiece, opened it, took one out, and smoked it. Then he realized what he had done. He was in a quandary. He closed the pack quickly and put it behind the clock, then decided that he had better put it where Dr. D. had placed it; but at that moment Dr. D. returned, so the subject was forced to converse casually with this on his mind. It was still on his mind, Erickson explained, and would be on his mind after waking from the hypnosis.

He was then awakened. After a few remarks, Dr. D. offered him a cigarette. The subject started, glanced furtively at Dr. D. and at the hypnotizer, and finally made himself take the cigarette. He handled it gingerly. Dr. D. began an innocuous conversation, but the subject paid little attention. Instead, he asked Dr. D. what he thought about "sentimentality" (uttering the word in a disgusted tone). He added that he himself was not sentimental and that he tended to dislike people who were sentimental and maudlin. He said he hoped Dr. D. was not sentimental, and that Dr. D. did not seem sentimental.

Dr. D. tried to change the topic, but the subject kept on. He raised a hypothetical question about a man who owned an old homestead. This man lost so much money during the depression that he thought he would have to sell the place; but the house burned—it went up in smoke.

The subject then talked of guilt feelings, how everybody stole, and how he himself had stolen. He wanted to know how Dr. D. would feel about anybody who had stolen unwittingly. Again Dr. D. tried to change the topic but failed. The subject told of having stolen a cigar which a man had kept for sentimental reasons, but which the subject had not realized was a keepsake. He had felt very badly about it afterward, he said, and had wondered about replacing it so that the sentimental man would not be angry with him. He insisted that he cared for a person's feelings, also that people should not think too hard of one who unwittingly had violated some of their sentimental values. After this he confessed that he had even stolen cigarettes (pause)—a pack of cigarettes. Here he glanced most furtively at Dr. D. and the hypnotizer, and seemed very ill at ease. He said that he had smoked one of the cigarettes and had enjoyed it; but that it left a bad taste in his mouth. He had been unable to get those cigarettes off his mind, he said, even though he knew they were nothing to worry about.¹²

At the laboratory one evening, Erickson hypnotized the same young man and told him that he, the subject, had just had the following experience: He was shown a very valuable film of an ape experiment, then was left alone in the room with the film, part of which had unrolled into the wastebasket. Absent-mindedly he lit a cigarette and

¹² Abstracted from Milton H. Erickson, *Psychoan. Quar.*, 1939, 8:350-352.

threw the match into that basket, whereupon the film caught fire and was destroyed. Since there was nothing to be done about it, the subject resolved to think no more about it and to enter into the spirit of the evening with the guests. The burnt film, however, was on his mind. Moreover, it would stay on his mind, though not consciously, and would govern all his reactions after waking.

When awakened, he was extraordinarily concerned about smoking, wastebaskets, experiments, films, and animals for experiments, also about getting away from all experimenting. After the subject had talked about these topics for some time, Erickson asked him to look at a picture of a spectrum on the wall, and told him that gradually he would see there something that was pleasant, followed by something unpleasant. Soon the subject began to "see" and to enjoy the motion picture of Mae West in "I'm No Angel"; but then he became unhappy and uncomfortable and explained that he was seeing the picture called "I Am a Fugitive from a Chain Gang." He was affected particularly by the scene of a man being lashed.¹³

Another time, Erickson hypnotized this subject and told him that after he awakened Dr. D. would talk to him about something abstruse, and that he would try to seem interested but really would be much bored and would want to shut Dr. D. off. When the young man awoke, Dr. D. began talking to him. He seemed politely attentive, and, as often as Dr. D. asked whether perhaps he was not interested, he insisted emphatically that of course he was very much interested. Nevertheless, he tried several times to get Dr. D. down to concrete points; and finally, looking around the room, and seeing an open door, he said, "Excuse me, I feel an awful draft," and closed the door. When asked what he was doing, he replied, "The air seems to be awful hot; I thought I would shut off the draft." When Erickson pretended not to understand, the subject explained, "Why, I just shut the bore." Upon hearing Erickson repeat this remark for the benefit of the audience, he started, and seemed much embarrassed. "Did I say that?" he asked. "I didn't mean that. I just meant I closed the door." He was most apologetic.¹⁴

Definition. Like sentiments, complexes are relatively simple ideational patterns. Unlike sentiments, however, complexes are not integrated with the rest of the personality, but conflict with it and in many cases are dissociated from it. Thus complexes are more or less disparate from the rest of the personality. *A complex is a disparate, affectively toned constellation.*

¹³ Summarized from Erickson's unpublished record.

¹⁴ Abstracted from Erickson, *Psychoan. Quar.*, 1939, 8:340-341.

Whenever a sentiment becomes unacceptable to the person who has it, it becomes a complex. For example, a woman who mourned the loss of her child began to feel, after some months, that she was grieving too much. She set out to "bury her grief" under intellectual activities. Within a few days, she became subject to "unaccountable attacks of grief," attacks which seemed to bear no relation to what she was thinking about. When she realized that her sentiment of grief for the child had become a complex, she resolved to treat it differently. She faced her loss; she associated her memories of the child with her daily satisfactions and her philosophy; and, within a few weeks, she began to live as she should.

Freud's "oedipus and electra complexes" are complexes only when they have become unacceptable to their possessors. Otherwise these patterns are not complexes but sentiments. While some sentiments are so narrow and intense that they keep the individual from being his best, reasonable sentiments of affection for one's parents are normal.

Many a sentiment becomes a complex as integration declines; and many a complex is taken up into sentiments and other constellations as integration improves, especially through good learning.

Complexes, no less than sentiments, should be distinguished from moods. A complex is, though more or less disparate, a patterned constituent of the individual. A complex becomes active or inactive largely according to situations which are perceived or thought, at least subconsciously. Moreover, a complex implicates its own peculiar responses, such as panic, choking, fighting, or guilt. Thus, somewhat like a sentiment, a complex is more specialized than a mood.

Functioning. Like sentiments, complexes are not active all the time and, in some instances, may be only partially active. Complexes, also, are stirred by various associated processes, and set off other processes in turn. Unlike sentiments, however, complexes, being disparate, tend to function violently and recurrently and are not readily modified by learning. As Sidis observed, when a complex becomes active, the patient complains: "I am conscious, and still I have no control." No wonder that the church has ascribed subconscious activities to divine powers or to satanic agencies."¹⁵

Thus the functioning of complexes illustrates abnormal redintegration.

¹⁵ Adapted from Boris Sidis, *Symptomatology, Psychognosis and Diagnosis of Psychopathic Diseases*, 1914, 317-318, 391, 394 (Badger).

Systems

Definition. Following a considerable usage, for the present context we shall say that a *system is any large pattern*.¹⁶ This means any large pattern of conditioned reflexes, of habits, of ideas, or a combination of these, whether or not affectively toned, and whether integrated or disparate.

Perhaps some large patterns are native. Such patterns, however, are usually so taken up into acquired patterns that it seems unnecessary to mark them off here.

Evidently there is no sharp line between any of the simpler acquired patterns and a system; a system is merely more complex than a conditioned reflex, a habit, or a constellation. Often a fairly complicated ideational pattern is called a sentiment or a complex, as the case may be, to emphasize how it works; or the same pattern is called a system, to emphasize what it contains.

Many systems are so large that they, even more than sentiments and complexes, are easily confused with moods. A system, however, is a large patterned constituent of the individual; it relates largely to sensed, perceived, or thought situations; and it implicates its own array of responses. Thus even a system is more specialized than a mood.

Types of systems. Relatively speaking, there are *nonaffectively toned systems* and *affectively toned systems*; also, cutting across that classification, *integrated systems* and *disparate systems*.

A useful classification of all systems that include ideas was put forward by Morton Prince. He grouped such patterns into *subject systems*, *chronological systems*, and *mood systems*. A subject system, Prince showed, is organized about a particular topic, say, abnormal psychology, local politics, or yachting. A chronological system includes the memories of a particular period of time. A mood system consists of the various reactions which have become associated with a particular mood.¹⁷

Often, of course, a system represents more than one of these types.

Examples of systems. Certain injuries to afferent tracts make one side of the body anesthetic. Through psychogenic systematization, some

¹⁶ Cf. especially Morton Prince, *The Unconscious*, 1921, 283ff. (Macmillan); and McDougall, *The Energies of Men*, 221.

¹⁷ Cf. Prince, *op. cit.*, 283-296.

patients with those injuries become blind to and even unable to think of the anesthetic side.¹⁸

Erickson made normal subjects functionally deaf for stated periods by hypnotic suggestion. In the process, he discovered that some subjects developed at the same time other defects, such as reduced vision, cutaneous anesthesia, or paralysis. When he decreased these accompanying defects by suggestion, the deafness decreased; and, in certain subjects, when he induced the other defects, deafness was induced.¹⁹

A man with "sensory aphasia" understood the speech of persons whom he had associated with their topics; for example, he understood his wife when she spoke about family affairs, and his nurse, about his daily needs; but he did not understand his doctor or any new person who said the same things. Moreover, he understood speech best when his own speech was most fluent; and whenever he could not understand another person easily, his own speech became confused.²⁰

The complex automatizations called "higher units" and "complex redintegrations" in the preceding chapter illustrate systems of habits.²¹

Edridge-Green told of a girl of seventeen who spent much time reading to her grandfather, sometimes for three or four hours at a stretch. She soon found that she could read easily while paying no attention to the book, thinking of something else, and remembering nothing of what she had read. Occasionally, when tired, she fell asleep, yet read on, and when she awoke found that she had covered considerable ground while asleep.

At a party in the last century, a woman was asked to play for dancing. She was too drunk to rise from the stool; her eyes closed, her head fell forward, and she seemed to be asleep; nevertheless she played in perfect time. "In fact," according to a clergyman who was standing near the piano, "the problem was to make her stop; for when she was shaken out of sleep, she evidently intended to go on all night. To set her going again, it was only necessary to put her hands on the keys, and she would begin a new quadrille, soon relapsing into sleep, and yet continuing to play well."

An actor met some friends one afternoon and became so drunk that they had to take him to his rooms and leave him there. As the hour for his performance approached, and he did not appear at the theatre, two men went to his lodging and found him dead-drunk. Immediately they seized him and walked him to the theatre. When it was his turn to act, he was pushed on to the stage. He staggered, but the moment the

¹⁸ Cf. G. Anton, *Arch. f. Psychiat. u. Nervenkr.*, 1899, 32:87-88.

¹⁹ Cf. Milton H. Erickson, *J. Gen. Psychol.*, 1938, 19:139-140.

²⁰ *PA* 10 4498.

²¹ Cf. also F. A. C. Perrin, *J. Comp. Psychol.*, 1921, 1:287-308; *PA* 8 2002, 3039, 15 2550.

other performer addressed him he was apparently sobered and went through his part without a hitch. He had to be carried home again and the next morning could hardly be made to believe that he had been to the theatre.

Miss Anderson was playing in "Romeo and Juliet." After the fourth act, her maid started to help her take off her dress in order to put on the white draperies for the tomb scene. "Don't do that," said the actress. "I have to play the potion scene yet." It took some time to convince her that she had just played it and, as the applause of the audience showed, with unusual effect.²²

A Chinese graduate student at an American university asked to be hypnotized for the experience. He was hypnotized easily, but replied to questions only in Chinese. Fortunately, two other Chinese students were present to translate, so that the demonstration worked out smoothly enough.

Beattie reported a man who, after a blow on the head, seemed to have lost only his knowledge of Greek.²³

Abercrombie said that a surgeon was thrown from his horse, lost consciousness, and was carried into a nearby house. Soon he became conscious and, in full detail, described the accident and directed his own treatment. In a few hours he was able to be taken home. A medical friend who accompanied him was surprised to find that he had lost all memory for his wife and children. After three days this memory began to return.²⁴

Amnesias for periods preceding shocks are common. Alexander Bain fell from his horse, dislocated his shoulder, and was unconscious for about three hours. During that time his shoulder was set without his knowing it. Afterwards he remembered nothing of the accident or of the hour preceding it. A member of Parliament was thrown from a cart, fractured his skull, and was unconscious for nearly five months. Then he gradually recovered his memories except for the accident and the week preceding it—a week during which he had done many important things.²⁴

A returned soldier, seven years after he had gone to France to fight, remembered none of his life before he went to France. He did not know his name, family, street, town, county, or state, or former occupation. His use of language and his daily habits, however, seemed unimpaired. He had drifted from hospital to hospital in one of which a doctor tried a few word associations without result; until an hour's

²² Abstracted from F. W. Edridge-Green, *Memory and Its Cultivation*, 1897, 185-188 (Appleton).

²³ Abstracted from John Abercrombie, *Inquiries*, 1833, 119, 116.

²⁴ Cf. George Croom Robertson, *Mind*, 1887, 12:636-637.

hypnotic probing and urging restored his memories. (Apparently most cases of abnormal systemization cannot be worked out so simply.)

Amnesias also occur for periods succeeding shocks. A university professor went skating one afternoon shortly after three. A little before four he fell, striking his head on the ice, and was unconscious for three or four minutes. Upon becoming conscious, he explained that he was only dizzy and asked how he fell. He commented upon his companion's skating and said that he himself was not going to give up skating because of a mere fall. He practiced for nearly an hour, then took off his skates and drove home alone. On the way home, he was surprised to note that dusk was approaching; that it was almost five o'clock; that he felt dizzy; and that he could not remember anything that had happened since he was skating during the earlier part of the afternoon.²⁵

According to Abercrombie, "a young clergyman, when on the point of being married, suffered a head injury by which his understanding was permanently deranged. He lived thus to the age of eighty, and to the last talked of nothing but his approaching wedding."

A woman in a long illness forgot all that had happened during the ten or twelve years she had lived in Edinburgh. During these years her life had been rather uniform and tranquil. She remembered well the previous years, in which she had become the mother of a large family.²⁶

Miss Beauchamp, Prince's famous case of multiple personality, had an experience that made her unhappy for twenty-four hours. To relieve her, Prince suggested that she would forget the original experience. She did forget it, together with the twenty-four hours.²⁷

A man reported by Duval spoke only Polish during his boyhood, then removed to German districts where, according to his children, "for thirty or forty years he neither heard nor pronounced a single word of Polish." Nevertheless, "during an attack of anesthesia which lasted nearly two hours, he spoke, prayed, and sang, using only the Polish language."²⁸

"A woman has painful gums because of an ill-fitting plate. At the same time she is depressed, feels she has sinned and is unworthy in the sight of God. The two experiences go on side by side for some time until finally the patient believes that the pain is a sign of her unworthiness or even a punishment for it."²⁹

According to Combe, a porter got drunk, left a parcel at the wrong house, and when sober could not remember where he had left it; but

²⁵ Cf. PA 9 5713.

²⁶ Adapted from Abercrombie, *op. cit.*, 116-119.

²⁷ Prince, *op. cit.*, 291.

²⁸ Cited by Ribot, *Diseases of Memory*, 1882, 181.

²⁹ Edward A. Strecker and Kenneth E. Appel, *Discovering Ourselves*, 1931, 220 (Macmillan).

the next time he was drunk he remembered and went and got the parcel.³⁰

As Adler observed, "If a man suffers a defeat and is discouraged by it, he recalls previous instances of defeat. If he is melancholy, all his memories are melancholy. When he is cheerful and courageous, he selects quite other memories; the incidents he recalls are pleasant, they confirm his optimism."³¹

Development of systems. Many systems develop through learning, and disparate systems become disparate through conflict and perhaps dissociation. Since the conditions for conflict, dissociation, and learning have been discussed in the preceding three chapters, here we need only consider a few examples of how systems develop.

A student who had two "pet aversions," cats and mice, noticed that her dreams often included both.³² In connection with "abnormal reintegration" and "complexes," above, we saw how various fears in the man who was afraid to go far from his home, likewise in the man who had throat spasms, combined into larger patterns.³³ In much the same way various sex, love, anger, hatred, jealousy, guilt, respect, and other impressions combine into systems representing those several themes or their combinations.

L. F. Jones studied the memories of subjects who had read a certain story followed by various sentences some of which related to the story. She found that parts of the story which were supplemented by sentences were recalled better than the other parts, and that sentences which related to the story were remembered better than the other sentences.³⁴

Many a person comes to love or hate not only an individual but numerous things associated with him, including what he likes.

Certain drugs dissociate systems.³⁵

Electric shock treatments for mental disorders often induce amnesias for the treatment and even the period of illness.³⁶

A man whom we shall call R had been working in a stock room for a month. His employer, E, suggested to R a somewhat better way to do

³⁰ Adapted from Abercrombie, *op. cit.*, 224.

³¹ Alfred Adler, *What Life Should Mean To You*, 1931, 73 (Little; later Grosset). Cf. PA 25 206.

³² Notes left by Arthur Henry Pierce.

³³ Cf. 274, above.

³⁴ Louise Fenger Jones, an unpublished study.

³⁵ Cf. PA 17 82.

³⁶ Cf. Bernard Glueck, Jr., "Psychopathological Reactions and Electric Shock Therapy," read before the American Psychopathological Association, 1942.

the work. Immediately R burst forth with rage, called E an insulting name, said he was unfair and incompetent, and consigned him and his plant to hell. This outburst surprised R almost as much as it did E. R admitted that it was unjustified and sought psychological counsel about it. A careful analysis brought out the following history:

R was somewhat irritable by nature. His father was very irritable, and as a boy R resented many things his father did; yet he had to keep this resentment to himself. He also resented some things that his teachers did. One teacher, in particular, seemed to dislike R unreasonably; and after graduating from the school, R always regretted that he had never told that teacher what he thought of him. R advanced through several jobs, and when he was thirty-five obtained one which he thought should be permanent. His employer, however, seemed to take a dislike to him; and when the economic depression came, R was one of those laid off. R felt that this was unfair. After two or three months, he was hired by E. Here he worried somewhat as to whether he would be found satisfactory, but concluded that apparently E liked him and all would be well.

About three weeks after entering E's employ, R worked after hours on his house, got rather tired, and slept poorly. The next morning his wife was impatient about something he had failed to do, and spoke to him in a way that reminded him of his father. As it happened, E, too, was under some tension that morning; and when he told R in an anxious tone that a certain bit of work was "needed in a hurry," R took E's tension to mean dislike, and "hurry" to mean that R was a slow worker. R was reminded of criticisms he had suffered previously from his wife, his last employer, his father, and his teacher (whom E resembled considerably). Upon all of these associations R brooded. He concluded that E was against him, but that he would give E another chance. During the week that followed, he found further "evidence" that E was against him and became increasingly resentful, until the "explosion" occurred.

In general, apparently, each lesser pattern tends to function for itself, and to absorb whatever other functional elements it can.³⁷ At the same time, the organism tends to integrate all its lesser patterns into a whole.

Functioning of systems. Like other patterns, systems are active at various times and in various degrees. They are called into activity by associated processes and they arouse further processes. Integrated

³⁷ Cf. Pierre Janet, *Psychological Healing*, 1925, 609 (Macmillan).

systems support integration of the personality as a whole. Disparate systems are seriously disintegrative.

Conflicts caused by disparate systems are often striking. The war veteran who could not recall what his life had been before he went to France did recall it when hypnotized, but not easily. His occupation, locality, travels, and family came back in about a half-hour, but his name stayed away. Finally the hypnotizer said to him, in substance: "All right. You were a good citizen, a skilled worker and a good family man before you went into the war. During the war you conducted yourself as a real man. But a man who does not know his own name is only half a man! Now that we have gotten these memories of where you were and what you did, tell me: *What is your name?*" The man, lying in a hypnotic sleep, slowly raised his arms, drew up his knees, took a deep breath, tensed the muscles of his face, shook all over, stuttered (he was not a stutterer), stopped breathing, and then came out with "TH-TH-THEO-do-ore"—ending the word with a great sigh as his limbs relaxed. "Good!" said the hypnotizer. "And what's the rest of your name?" "Fleck," he replied, weakly but easily.

Further connections were established between the hitherto forgotten memories and the ordinary memories, and he was awakened with instructions to remember both sets. He did so, and forthwith became a self-directing person.

Certain artists, musicians, writers, and other persons who can work only when "in the mood for it" seem to have cultivated their work systems so narrowly that any active pattern not included in the work system either inhibits that system or is specially dissociated from it. In either case, the work system is more or less disparate from the rest of the personality; it is compartmented. Examples of the inhibitory type of compartmentation are common; indeed, possibly everyone finds his work thus inhibited by extraneous patterns at times. Perhaps the clearest example of the dissociated type is Mrs. Curran, who appears to have done her housekeeping without thought of writing and who, as "Patience Worth," appears to have written, automatically, finished stories and poems without thought of housekeeping.³⁸ Many creative workers, however, seem quite uncompartmented.³⁹ As Prince observed, "It is said of Napoleon that he had all the subjects of his experiences arranged in drawers of his mind, and that he could open each drawer

³⁸ Cf. Chapter 13, The Subconscious, below.

³⁹ Cf. Norman Charles Meier, *Art in Human Affairs: An Introduction to the Psychology of Art*, 1942, passim (Whittlesey).

at will, take out any subject he wished, and shut it up again as he wished." ⁴⁰ From what we know of Shakespeare's life and works, it seems that Shakespeare was not compartmented.

To have one's work system more or less disparate from the rest of the personality involves both advantages and disadvantages for the individual and for his work. Such compartmentation protects the individual from having to develop the broadest perspectives and the most complex adjustments and thus protects his peace of mind, so long as the grooves which fit his life remain undisturbed. The compartmentation also protects his work system from distracting patterns and makes all his work associations peculiarly available when any of them are aroused; so long as extraneous patterns do not check or disrupt the work system as a whole. On the other hand, compartmentation of the work system prevents the best integration of the individual and leaves him more or less helpless whenever his life grooves fail to carry him through new conditions. Moreover, the compartmentation isolates his work associations from many new relations and perspectives and so tends to make the work more ingrown and peculiar than sound and beautiful—more of the ivory tower, if not of the asylum, than of the world.

Whether integrated or disparate, systems are major structures of the total individual.

Disparate Personalities

A case of multiple personality is called such because it contains one or more disparate personalities, personalities which are different from and incompatible with the rest of the individual.

A disparate personality seems to amount to a rich and highly developed disparate system integrated within itself much as a normal person is integrated. Disparate systems therefore shade insensibly into disparate personalities, and in some cases either term may be used, according to emphasis. Thus, in the preceding section, we called "Patience Worth" a disparate work system, though she is certainly a disparate personality. The term "system" points to any richly developed pattern's content; and "personality," to an occasional, richly developed pattern's largely independent integration and functioning.

A disparate personality is a great part of the total individual; yet the disparate personality relates largely to situations, and its responses are more characteristic of that personality than of the total individual. Thus even a disparate personality is more specialized than a mood.

⁴⁰ *Op. cit.*, 285-286.

Disparate personalities develop and function like complexes and disparate systems, only on a grander scale.

Learned Attitudes

An attitude may be considered not only a relatively characteristic and general motive, but also a pattern. Learned attitudes are acquired patterns.

Important learned attitudes are an individual's characteristic broader readiesses, expectations, intentions, wishes, desires, purposes, principles, and ideals.

A learned attitude is really a well-developed sentiment, complex, or system, as the case may be, considered more in terms of output than of content or of mode of functioning. It follows that attitudes develop and function as those other patterns do.

Conscience

Traditionally, conscience has been considered a supernatural guide to the higher life. Psychologically, conscience becomes understandable when defined as *the individual's moral attitudes*. Here "moral" means not merely customary or legal; it means ethical, of the stuff of ethics. Ethics is the science of values in their relation to life as a whole.⁴¹

"The social conscience" means the moral attitudes of all the individuals, official and lay, who really control a given society. The social conscience affects individual behavior externally, as the weather does, and internally only when it affects his own moral attitudes. Commonly, it does affect his moral attitudes. Many individuals' consciences, however, are more primitive, and many are more highly developed, than the social conscience.

The moral attitudes that make up any individual's conscience may be either well or poorly integrated—usually the latter because moral education is still little developed. An unintegrated conscience is unenlightened; it may reduce to little more than conventional or even neurotic patterns, taboos, rites, and superstitions, which resist ethical development.⁴² An integrated conscience is enlightened. It expresses all that the individual has learned about human values, and it encourages him to learn more. Thus an integrated conscience, one developed through

⁴¹ Cf. Walter Goodnow Everett, *Moral Values*, 1918 (Holt); Frank Chapman Sharp, *Ethics*, 1928 (Century); Ralph Barton Perry, *One World in the Making*, 1945 (Current Books); etc.

⁴² Cf. PA 9 280E.

education as distinguished from indoctrination, makes for the best human living.

Learned Sets

Unlike attitudes, sets are specific motives. Like learned attitudes, however, learned sets, even momentarily learned sets, are acquired patterns considered in terms of output. Thus learned sets are of many types, and develop and function like the various patterns they represent.

Further References

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13

The Subconscious

The human understanding is of its own nature prone to suppose the existence of more order and regularity in the world than it finds. And though there be many things in nature which are singular and unmatched, yet it devises for them parallels and conjugates and relatives which do not exist. . . .

The human understanding is no dry light, but receives an infusion from the will and affections; whence proceed sciences which may be called "sciences as one would."

The human understanding is of its own nature prone to abstractions and gives a substance and reality to things which are fleeting.

Francis Bacon

Consciousness and other processes. Consciousness or awareness is always consciousness of something, though not necessarily of a material object. The simplest forms of consciousness seem to be of primal, elementary excitations; for example, consciousness of unpleasantness, a pressure, or a sound. Higher forms of consciousness involve consciousness of things more remote and meaningful; such as the cause of the unpleasantness, the consequences of the pressure, or the meaning of the sound—dinner, the dining room, the way thither, sociability, dependable nourishment, security, social justice, human happiness.

We have assumed that all the neural processes which are important for psychology are reactions to excitations, that all consciousness is correlated with neural processes, and that the highest or most synthetic

consciousness is correlated with dominant neural processes of the highest levels.¹ It follows that consciousness of anything is correlated with a reaction to the excitation which that thing is, or which it arouses directly, or which it arouses indirectly through conditioned excitations.

Not all neural reactions, however, are processes in the higher levels of the nervous system; and of those that are, not all are dominant neural processes. Thus, goose flesh occurs often without consciousness; a person walks habitually while thinking of other things; a preoccupied person fails to hear his name called; often the solution of a problem "comes to mind" without having been worked out consciously; and the markedly dissociated individual writes automatically what surprises him when he reads it.

Interpretations. All men find consciousness integral to the pre-eminently human processes and apparently to every alert human body. Consequently, thinkers from the animists down have ascribed consciousness to many further processes and things. The animists believed that not only men but also animals, plants, and many inanimate objects have souls, hence are conscious. Together with the modern spiritists, the animists believed also that the dead, or their souls, are conscious. Many have believed that the souls of the unborn are conscious, even before the unborn exist as embryos. The Syrian Neo-Platonist Jamblicus saw the world as a hierarchy of souls, each with its own consciousness. The psychophysicist Fechner assumed that the world as a whole is conscious. Hartmann thought that a fundamental consciousness, which he called the Unconscious, must function in all perception, instincts, reflexes, and even bodily growth. Freud and other psychoanalysts, also the Paris group, the Nancy group, the autosuggestionists, and, in America, James, Prince, and others, have explained many psychological phenomena through ideas and other psychological processes that are within the individual but not within his dominant consciousness. Such processes they have called unconscious or subconscious.²

Other thinkers have opposed any such interpretation. Descartes opposed it because he considered the soul a single spirit, attached to the body at only one point. Various thinkers have assumed that all consciousness reduces to knowing, and every individual's knowing is single, hence for any individual to have any consciousness besides his dominant one is impossible. The materialists have felt that any consciousness is

¹ Cf. 183-184, above.

² Chapter 3, above.

an unscientific ghost, and that any consciousness behind the normal one is the ghost of a ghost. The materialists might well quote Spinoza's observation that "the mechanism of the human body . . . far surpasses in complexity all that has been put together by human art. . . . No one has hitherto laid down the limits to the powers of the body, that is, no one has as yet been taught by experience what the body can accomplish solely by the laws of nature."³ A number of thinkers, finally, have argued that any unconscious or subconscious psychological processes are impossible because either unconscious or subconscious consciousness is a contradiction in terms.

Prospect. Evidently the questions about consciousness and unconsciousness or subconsciousness range from the center of the human individual to the limits of the universe. The relevant questions for us, however, are about psychological phenomena outside the individual's dominant consciousness yet within the same individual. All phenomena which might be so interpreted we shall call "the subconscious," without trying to settle offhand whether they involve any consciousness. In the sections that follow we shall survey the phenomena reported by careful observers, present a general view, and suggest some discriminative definitions and probable mechanisms of the subconscious.

Phenomena of the Subconscious

Earlier chapters have shown that many a motive, many a readiness to react, is subconscious; in that the individual is not aware that he has that motive, that he is ready to react in that way. Likewise, many a reaction, even an overt response, is subconscious. Conflicts occur often between responses at least one of which is subconscious. Every repressed motive is, so long as repressed, subconscious. Dissociated elements and processes are commonly subconscious. Memories which we "have" but do not "have in mind" are subconscious. Sometimes memories that seem wholly lost "come up" from the subconscious, wonderfully preserved. Many acquired patterns, including complexes, disparate systems, and disparate personalities, are largely if not wholly subconscious. Subconscious solutions of problems, and automatic (distinctly subconscious) writing, we have mentioned already. Subconscious speech, saying aloud things which the one who says them is either surprised at or even fails to hear, occurs also.⁴ In later pages, we shall

³ *Ethics*, III, ii, Note.

⁴ Cf. Taylor, *Readings*, 431-434.

meet further subconscious acts, perceptions, thoughts, and subconsciously developed hallucinations, delusions, systems, and personalities. Abnormal psychology abounds with subconscious phenomena.

Unless one is very superstitious or has observed actual cases, one is likely to doubt many of these phenomena. To become familiar with some of them, however, helps to understand others, since they greatly overlap in mechanisms. Thus, dreams, sleep-walking, fugues, hypnosis, automatic writing, and multiple personality alike puzzle the uninformed individual; yet they all express, at least temporarily, disparate systems, and a highly developed disparate system is a disparate personality, which together with the rest of the individual constitutes multiple personality.

It follows that dreams, sleepwalking, fugues, hypnosis, automatic writing, and multiple personality cannot always be distinguished from one another, and that they show many of the same phenomena. The six groups are so revealing, however, that we may well consider examples from each.

Examples from Dreams

Laurent observed a man aged more than 50 years who came to the hospital for an operation. When given some chloroform, the man became greatly excited for a while, then grew calm enough to talk and answer questions. As his skin at that moment was insensible to pain though not to contact, the operation was rapidly performed. The patient recounted perfectly how he felt each pressure of the knife and of the needle. When the operation was finished and he was taken back to his bed, he fell into a drowse for about an hour and awoke with no memory for anything that had happened since his first whiff of chloroform.

The next day he still remembered nothing of the operation.

Three mornings later, he asked about various details of the operation, including whether one person had not had to go and exchange a certain needle. This had happened exactly as he described it. He explained that no one had told him about it, but that during the night he had seen again, in a dream, the entire operation as it occurred.⁵

The returned soldier who was subject to nightmares of being "cornered up," as described in an earlier chapter, when hypnotized recalled that those nightmares were memories of the very experience which he had never been able to recall when awake.⁶

⁵ Adapted from L. Laurent, *Des États seconds: Variations pathologiques du champ de la conscience*, 1892, 37 (Imprimerie V^e Cadoret, Bordeaux).

⁶ Cf. 274, above.

Another case in an earlier chapter, the young sadist who had begun to realize his sadism and had been reading Freud, uncovered a main root of his trouble through a dream.⁷ Dreams have been useful thus in many cases.⁸

Examples from Sleepwalking

Since primitive times, sleepwalking has supported the popular belief in souls that enter, inhabit, and leave our bodies. Since the Greeks, however, if not earlier, sleepwalking has stimulated the development of abnormal psychology and particularly such concepts as dissociation and the subconscious.

Examples. Jastrow described several sleepwalkers. One, a young man, when walking in his sleep, "saw and felt and recognized familiar objects, and behaved toward them in a routine, partly intelligent fashion. If a pipe were placed in his hands, he handled it correctly, but could not light it; and if it were lighted for him, the pipe went out because he did not inhale properly. He could be induced to sit at a table and to go through the actual movements of writing. If given a book, he turned its pages, resting his gaze on each page, but without reading; and he continued in this automatic mimicry if the light were withdrawn. When forcibly aroused, he was shocked to find himself out of bed and in the presence of his friends. Had he awakened of his own accord, he might, with equal suddenness, have come to himself and without memory of his immediate occupation.

"A confirmed somnambulist, a young woman, arose, dressed, walked slowly and deliberately, with eyes open in a fixed stare, found her way from her bedroom to the parlor below, and there scratched a match (which she had brought with her) against the under side of the mantel-shelf, waited until it caught fire, turned on and lighted the gas, and flung herself into a chair, gazing with rapt absorption at a portrait of her mother that hung above the mantel. Her eyes did not wink when threatened, not even when the cornea was touched. When a book was placed between them and the portrait, she took no notice of the obstacle. A burning sulphur match held under her nose aroused no response; and a bit of bread saturated with quinine, that was forced into her mouth (and which presently she chewed and swallowed), failed equally to arouse any reaction. Upon her own initiative she arose and paced the room, sobbing and weeping violently. While thus excited she was led back to her chair, to which procedure she offered no resistance, and again became composed. Banging two books together,

⁷ Cf. 110-111, above.

⁸ Taylor, *Readings*, 581-590; etc.

pulling her hair, pinching her face, tickling the sole of her foot—the last followed by laughter and a withdrawal of the foot—failed to awaken her. When at length awakened by violent shaking, she was startled to realize her situation and had no recollection either of her actions or of any dream that may have aroused them.

"A lady had walked in her sleep upon the roof of a church. Her husband found that when in a natural sleep she would, without awakening, answer queries whispered in her ear; and by this means he learned that in her wanderings she had injured her foot by stepping on a nail. Upon awakening she was again questioned in regard to her foot, acknowledged that it pained her, but could not account for the injury.

"Somnambulists, who in sleep have hidden objects of value, and who were quite unable in their waking condition to find them, in a succeeding night-walking have gone directly to the place of concealment." ⁹

An occasional case is disturbing. "Sam W., a sixteen-year-old boy, was admitted to the hospital because of spells of walking and talking in his sleep. He got out of bed one night, took a knife from the kitchen, began what he said was a hunt for the dog, and fell down stairs. He was carried to bed. The next morning he was asked: 'Did you dream about going after the dog with a knife last night?' He answered, 'Yes, how did you know?' He was then told the circumstances. This was the way he usually learned that he had really acted out what he had dreamed.

"Another night while asleep he took a jack-knife from his pocket and carved his initials on his arm. (The scar 'S. W.' is still there.) The boy sleeping in the room with him reported this, but said he was afraid to stop him for fear of being stabbed.

"On another occasion his knife had been taken from him and hidden, but he rose and found it in his sleep. Then he stood over his roommate's bed with knife in hand, and finally scratched the boy's head with the knife, put it down, and went back to bed." ¹⁰

Dufay told of a young housemaid who got up in her sleep every night to put the house in order. One time she picked up some jewels. After waking the next morning, she could not remember where she had put them. She was accused of theft and was imprisoned until questioning in hypnosis enabled her to locate them. ¹¹

Generalizations. "Observations of this general import," Jastrow concluded, "have been sufficiently verified to establish that the somnambu-

⁹ Adapted from Joseph Jastrow, *The Subconscious*, 1906, 267-271 (Houghton Mifflin).

¹⁰ E. Guttman and C. E. Winterstein, abstracted in James Grier Miller, *Unconsciousness*, 1942, 47 (Wiley).

¹¹ Cited by Laurent, *op. cit.*, 21.

list is suggestible; that to some extent an appeal to his senses arouses appropriate response; that he, in part, appreciates the felt and seen positions and nature of things; and that his reactions, though automatic, reflect a simply intelligent yet limited adaptation to routine situations. They show further that spontaneously he takes cognizance only of that particular area of sensations and movements that fits in with his self-imposed quest. The somnambulist, bent upon finding a lost object, avoids obstacles, manipulates latches and locks and keys and doors and drawers, finds the material in the kitchen for washing dishes or baking a pie, but is insensitive to the happenings about him, does not hear or see the person who, with lighted candle, is approaching to awaken him, and is likely to stumble against any unfamiliar object, and unintelligently to fumble about the knob of the door that, without his knowledge, has been locked to prevent his escape. Thus thwarted in his purpose, he may wander back to bed without awakening; yet a sufficiently violent stimulus breaks through the narrow circle of his contracted perceptions, and brings him to normal wakefulness.

"Many a somnambulist who is aware of his failing, and who has found it unavailing to lock the door and to hide the key (the nocturnal consciousness being quite equal both to securing the key and to opening the door), has resorted to the expedient of dropping the key into a basin of cold water, relying upon the shock, when the sleeper's hands were plunged into the water, to awaken him. This group of possibilities and limitations of mental behavior sufficiently establishes the close affiliation of natural somnambulism to other conditions, and especially to hypnosis."¹²

Examples from Fugues

Both sleepwalking and fugues are systemized, disparate activities in which the subject wanders or travels incompatibly with his waking life. Characteristically, however, sleepwalking occurs during the individual's sleep. A fugue may be launched through what looks like a short sleep, but usually the fugue occurs while the individual seems awake. Also, an attack of sleepwalking covers relatively little time and space, whereas a fugue is more extended.

A fugue was demonstrated by the young man who drank with friends, leaped through a window, broke his ankle, and went at least

¹² Jastrow, loc. cit.

ten miles before he slept and awoke remembering nothing of what had happened since the first drink.¹³

A famous case of Janet's is Rou., a rather nervous boy of 17, son of a neuropathic mother. "At 13," Janet said, "Rou. often went to a small public house, visited by old sailors. They would urge him to drink, and, when he was somewhat flustered, they would fill his imagination with beautiful tales in which deserts, palm trees, lions, camels, and negroes were pictured in a most wonderful and alluring way. The young boy was very much struck by those pictures, particularly as he was half tipsy. However, when his drunkenness was over, the stories seemed to be quite forgotten; he never spoke of travels and, on the contrary, led a very sedentary life for he had chosen the placid occupation of a grocer's boy, and he only sought to rise in that honorable career.

"Now there come on quite unforeseen accidents [symptoms], almost always on the occasion of some fatigue or a fit of drunkenness. He then felt transformed, forgot to return home, and thought no more of his family. He would leave Paris, walking straight ahead, and go through the forest of St. Germain, or as far as the department of the Orne. Sometimes he walked alone; at other times he rambled with some tramps, begging along the roads; he had but one idea left in his head; namely, to get to the sea, enlist in a ship and sail away towards those enchanting countries of Africa. His journeys ended rather badly; he would awake suddenly, drenched, half starving, either on the highway or in an asylum, without ever being able to understand what had happened, without any memory of his journey, and with the most ardent wish to go back to his family and his grocery.

"I will dwell on only one of his fugues, which was of extraordinary duration, for it lasted three months. He had left Paris about the fifteenth of May and had walked to the neighborhood of Melun. This time he was thinking about the means of succeeding in his scheme and of getting safely to the Mediterranean. Until then he had failed, owing to fatigue and misery: the question was to find means of living as he went along. A bright idea had occurred to him: not far from Melun, at Moret, there are canals that go more or less straight to the south of France, and in those canals there are ships laden with goods. He succeeded in being accepted as a servant on a ship laden with coal. His work was terrible; now he had to shovel the coal, now to haul the rope in company with the donkey called Cadet, his only friend. He was badly fed, often beaten, exhausted with fatigue, but, though you would scarcely believe it, he was radiant with happiness. He thought only of one thing—of the joy of drawing nearer to the sea. Unhappily, in Auvergne,

¹³ Cf. 203-204, above.

the boat stopped, and he was forced to leave it and continue his journey on foot, which was more difficult. In order not to be resourceless, he hired himself as a helper to an old china mender. They went slowly along, working on the road.

"Then, one evening, an unlooked-for event took place again. The day's work had been a success; the two companions had earned seven francs. The old china mender stopped and said to him, 'My boy, we deserve a good supper; and we will keep today's feast; it is the fifteenth of August.' On hearing this, the boy heedlessly said: 'The fifteenth of August? Why, it is the feast of the Virgin Mary, the anniversary of my mother's name day.' He had scarcely uttered these words when he appeared to be quite changed. He looked all around him with astonishment and, turning to his companion, said, 'But who are you, and what am I doing here with you?' The poor man was amazed and was quite unable to make the boy understand the situation; the latter still believed himself in Paris and had lost all memory of the preceding months. They had to go to the village mayor's, where, with great difficulty, the matter was made more or less clear. The mayor telegraphed to Paris, and the prodigal child was sent back home. Is not that name, which suddenly evoked the memory of his mother and awakened him likewise, a pretty conclusion of a fugue?"¹⁴

Examples from Hypnosis

Subconscious early knowledge. A French investigator reported that he hypnotized a very suggestible young woman and told her "that when she awoke she would be six years old. She awoke thinking that she was at home with her parents, that it was evening, and that they were shelling chestnuts. She was sleepy and wanted to go to bed. She called her brother André to help her finish her work, but André amused himself by making little houses with the chestnuts instead of working. 'He is very lazy; he amuses himself by shelling ten and I have to do all the rest.'

"In this state she spoke the patois of Limousin, did not know how to read, and hardly knew her A B C's. She could not speak a word of French. Her little sister Louise did not want to go to sleep: 'It is always the way,' said she, assuming the child's attitudes, 'I have to traipse up and down with my nine-month-old sister.'

"Placing my hand on her forehead, I told her that in two minutes she would find herself ten years of age. Her countenance became entirely different, her attitude no longer the same. She recalled a dictation that she had on Wednesday and wrote an entire page of it readily and by

¹⁴ Adapted from Pierre Janet, *The Major Symptoms of Hysteria*, 1920, 51-53 (Macmillan). Cf. also PA 8 1713.

heart. It turned out to be a dictation that she wrote when ten years old!

"In the same way she was told that she was fifteen years old. She now knew how to read and write. She wrote *Le Petit Savoyard*.

"The difference between the two handwritings was very marked. On awakening she was astonished to find that she had written *Le Petit Savoyard*, which she no longer knew anything about. When she was shown the dictation that she wrote at ten years of age, she said that someone else must have written it."¹⁵

Such arousal of early patterns has occurred in many hypnotized subjects, either spontaneously or by the hypnotizer's suggestion. In a number of instances, the patterns have been shown to be historically accurate revivals.¹⁶ This does not prove, however, that every subject keeps his early patterns so perfectly; perhaps they are so preserved only when specially impressed or dissociated.¹⁷

Implanted complexes. Conflicts from complexes implanted in hypnosis have been noted already.¹⁸ Other phenomena result similarly.

Lundholm suggested to a hypnotized subject that he would be "deaf" to a certain click after waking. When he was awakened and the click was sounded, the subject apparently could not hear it. The click was then given together with an electric shock which made the subject's finger withdraw. Although this combination was repeated nearly a thousand times, and ordinarily it establishes a conditioned reaction in less than fifty times, in this subject the click by itself did not release the finger response. When the subject was rehypnotized, however, he remembered having heard the click during the trials; and when he was hypnotized more deeply, he remembered that he had had an impulse to withdraw his finger when the click was sounded alone, and that he had checked that impulse. Thereupon he was told that he would not resist any further impulse to withdraw his finger. Reawakened, and practiced and tested again, he showed the conditioned response.¹⁹

Erickson hypnotized deeply a young man who always smoked Camels and told him that after waking he would notice that Dr. D., who was present, was out of cigarettes; he would offer his own pack to Dr. D.,

¹⁵ Abstracted from H. Bourru and P. Burot, *Variations de la personnalité*, 1888, 153-158 (Baillière), as quoted by Alfred Binet, *Alterations of Personality* (Baldwin, tr.), 1896, 266-268 (Appleton). The former work, loc. cit., has photogravures of the different writings.

¹⁶ For example, cf. Taylor and Culler, *J. Abn. Psychol.*, 1929, 24:345.

¹⁷ Cf. Morton Prince, *Clinical and Experimental Studies*, 1929, 245, or 1939, 307 (Sci-Art).

¹⁸ Cf. 188-189, 274-277, above.

¹⁹ Cf. Helge Lundholm, *J. Abn. Psychol.*, 1928, 23:338-341.

who would forget to return them; after which the subject would want very much to ask him for the cigarettes, but would be too polite to do so or even to mention cigarettes in conversation, yet they would stay on his mind.

"When awakened, the subject talked about a boat on the bay, and said that the sight of water always made him thirsty, as did smoking. He then told a story about how the dromedary got one hump and the *camel* two. When the question of travel was raised he immediately pictured the pleasure he would derive from crossing the Sahara Desert rocking back and forth comfortably on a *camel*. Next he told a tale of Syrian folklore in which a *camel* played a role. When he was asked to tell something interesting about patients, he told of taking one to see a marathon dance. The patient enjoyed this immensely. The dancers' antics reminded the subject of a circus where one would see elephants, hippopotami, and *camels*. Asked what he would like to do, he commented on the pleasant weather and said that there was nothing more glorious than paddling in a canoe or floating at ease on the water, smoking."

Again Erickson hypnotized the subject and told him that he, the subject, greatly admired and respected Dr. D., but that unconsciously he was jealous of him and therefore would add a cutting edge to complimentary remarks when conversing with Dr. D.

When the subject was awakened, someone mentioned travel and its contribution to personal education. "The subject immediately brought up the fact that Dr. D. had studied both in the Middle West and in the East and that, having traveled abroad as well, he might well be called cosmopolitan. He himself, he added, would like to travel and get a cosmopolitan education but, in the last analysis, that was what was being done by any old tramp who traveled from one part of the country to another by stealing rides on freight cars. There followed a discussion of human behavior as it reflected local environments. The subject remarked that the man who had traveled showed a broader knowledge and better understanding of people and of cultural things. He added, however, that the same might possibly be said of any resident of east-side New York."²⁰

Erickson also hypnotized a twelve-year-old girl and gave her "suggestions to the effect that a certain box was actually a hot stove. She accepted these suggestions and, upon request, sat upon the illusory hot stove, squirming, twisting, protesting that she was being burned, and begging to be allowed to get off."

On another occasion he attempted to induce this same subject to sit upon an actual hot stove. "She obeyed the request by mistaking another

²⁰ Adapted from Milton H. Erickson, *Psychoan. Quar.*, 1939, 3:339-340.

article of furniture for that stove and sitting upon it instead, giving every evidence of discomfort and distress. No amount of effort could make her approach the real stove, even when protective measures were provided that she could recognize."²¹

Disparate subconscious processes simultaneous with conscious processes. Erickson found that he could set his subjects to carry out post-hypnotic assignments simultaneously with, yet independently of, the waking consciousness.

Thus, he hypnotized a farm boy and told him that "thereafter for a week, every time he pumped water to fill a certain watering trough which was out of sight and hearing from the pump, and which was known by him to require 250 strokes of the pump handle to fill, he was to turn and walk to the trough the instant it was full.

"A few days later an agreement was made in the ordinary waking state that the subject would be relieved of a certain onerous task much disliked by him if he were able to spell correctly most of the words given him by Erickson, the words to be selected from his own school spelling book. To this the subject agreed eagerly, and as the spelling test started, the boy's father appeared, in accord with secret arrangements, and demanded that the watering trough be filled immediately. Accordingly, the spelling test was conducted at the pump, where, as the subject pumped, one word after another was given him as rapidly as he spelled them. Suddenly, the subject interrupted his spelling, ceased pumping, and walked to the trough. The trough was full. Repeitions of the experiment elicited the same results. Also, independent counting of the pump strokes showed that the subject was keeping accurate count despite the task of spelling."²²

W. R. Wells reported observations as follows:

"At the end of one class hour I did a group experiment with the whole class of fifteen students in order to select the better subjects. At the beginning of the next class period one of these better subjects [an unusually good one, with so little training] volunteered for individual experiments. The subject selected was a man about thirty-five, never before hypnotized (except in the group experiment of the day before), and with a good history of physical and mental health. I first tested him to see if amnesia could be produced in waking hypnosis, that is, hypnosis without any suggestion of sleep. I readily produced

²¹ Adapted from Erickson, *Psychiatry*, 1939, 2:396.

²² Adapted from Erickson and Elizabeth Moore Erickson, *J. Gen. Psychol.*, 1941, 24:127-128.

amnesia for his name, with the suggestion that his hand write it while the amnesia persisted. Pencil and paper were then provided, and his hand was concealed from his view behind a screen. His hand immediately began to write his name. When the name was about half written the subject spoke up to say that he was sorry that the experiment did not seem to be working. After the name was completely written, and after amnesia for his name disappeared in five minutes as had been suggested, his writing was shown to him. His surprise and interest may be imagined.

"I next tested his normal ability in mental arithmetic, finding it fair. Then I made preliminary suggestions to him of the waking hypnotic type. I explained that I would give him a problem in multiplication, which he would solve subconsciously and the answer to which he would write automatically, with amnesia all the while both for what the problem was and for the fact that a problem had been given to him. I then said, 'Multiply 175 by 25,' and I *immediately* thereafter caused amnesia for the figures and for the fact that a problem had been given. Then, testing his normal conscious attention to the class discussion, which I continued, by asking him miscellaneous questions, I allowed time for the subconscious computation of the problem and for the automatic writing of the answer. His hand wrote 4,325. The correct answer to the problem is 4,375. In tests given to the subject in the solution of similar problems before dissociation had been produced in waking hypnosis, similar errors had occasionally been made. I have in general not found subconscious computation either more or less accurate than the conscious solution of similar problems."²³

Recurrence of hypnotic consciousness. Erickson gave various hypnotized subjects suggestions that they were to carry out after waking, and observed that, when carrying out the suggestion, the subjects manifested "a spontaneous, self-limited, posthypnotic trance."

Thus, "as one subject was conversing casually with others in the room, he was interrupted in the middle of a sentence by the predetermined cue for a posthypnotic act requiring a brief absence from the room. Immediately upon perceiving the cue, the subject discontinued the remark he was making, manifested the typical posthypnotic behavior, executed the act, returned to his chair, readjusted himself to his original position, seemed to go through a process of awakening, and took up his remark and continued it from the exact point of interruption." Another subject, instructed to perform a posthypnotic act imme-

²³ Adapted from Wesley Raymond Wells, *J. Abn. Psychol.*, 1924, 18:403 circa (Taylor, *Readings*, 535, 539-540).

diately upon hearing a certain auditory stimulus, was interrupted by that stimulus when he was in the middle of a long word while talking with others present. He launched at once upon the posthypnotic act, but was interrupted from that and was used to demonstrate hypnotic phenomena for 15 or 20 minutes. Then he was told simply to "go ahead." Thereupon, "he completed the posthypnotic act, returned to his original position, readjusted himself, awakened, and completed the interrupted word and continued in the same conversation, apparently totally unaware that there had been a lengthy interruption."²⁴

Erickson and Erickson observed that the subjects do not always return from a posthypnotic performance so precisely to the interrupted waking activity; but, on the whole, "there tends to be a complete amnesia for the trance and its events and an approximate return to the general situation with seemingly no awareness of any changes in it."²⁴

Janet noted that a subject who awoke from hypnosis with no conscious memory for the trance often recited all its events during a subsequent night's sleep. In some cases, the subject merely dreamed the events and remembered the dream and through it recalled what had happened. Ordinarily, the trance events are recalled easily in another trance.²⁵ They can also be obtained through automatic writing.

Examples from Automatic Writing

Observations of automatic writing by Gurney, Binet, Janet, James, Prince, and others have been mentioned in earlier pages. Here we shall consider it somewhat more systematically.

How automatic writing works. Subjects who are sufficiently predisposed or trained will write automatically, that is, without becoming conscious of the ideas that "come out" or, often, of the writing itself. Such writing occurs, in various cases, either spontaneously or by suggestion; in apparently normal waking hours, in hypnosis, or in some dissociated state such as sleep, weakness, or mental disorder; and with the subject's mind either "blank" or consciously absorbed in something quite different. In many cases, the writing consists of replies to questions addressed to whatever automatic-writing system is available at the moment. To reach that system without disturbing the main consciousness, usually someone who is conversing aloud with the subject

²⁴ Adapted from loc. cit., 131, 124-125.

²⁵ Pierre Janet, *The Mental State of Hystericals: A Study of Mental Stigmata and Mental Accidents* (Corson, tr.), 1901, 95 (G. P. Putnam's Sons).

about a different topic whispers the questions, or another individual asks them.²⁶

Its genuineness. Anyone who has not witnessed automatic writing is likely to doubt that persons can talk or do other things consciously while writing intelligently and subconsciously. As Janet said, "One must see these persons reveal, without their knowing it, what they wish to keep concealed, and what they think they have not told anyone."²⁷ A motion picture and sound film of "Joe" might have been convincing on this point.²⁸ Some automatic writing induced through hypnosis also seems convincing.

Erickson hypnotized a well-trained subject and told him that "on awakening he would engage in a casual conversation and that as he did so his hand would begin writing, but that he would have no knowledge of what he was doing.

"After he had written some incomplete sentences he was asked what he was doing by others in the audience. With some amazement he explained that he had been talking to Dr. D. When he was informed that while talking to Dr. D. he had also been writing, he immediately pointed out that this could not have been since he had been holding a cigarette in his right hand. (He had actually transferred the cigarette from his left to the right hand upon completing the writing.) As the audience continued to insist, he pointed out that he had had no pencil and nothing to write on; moreover, *he knew* he had not been writing and that the audience must have been mistaken.

"His attention was then called to a pencil and some paper on the table; he seemed surprised and insisted that he had not had anything to do with either. He was asked to examine the paper to see if there were not some automatic writing on it, or at least writing. He picked up the paper, glanced at the top sheet, shook his head, and began slowly to thumb over each sheet, examining the papers over and over again on both sides, finally restoring the pile to its original state. He said that he found no writing on any of the sheets. His attention was called to the top sheet which he was asked to examine. He looked it over carefully at the top, turned it over and examined it, seemed to be in doubt as to whether or not he had taken the top sheet, and took the second sheet; he examined that, put it away, and glanced at the third sheet; he then seemed to feel that possibly he had had the top sheet in

²⁶ Cf. 224-226, above.

²⁷ *The Mental State of Hystericals*, 427.

²⁸ Cf. 224-226, above.

his hand, so he re-examined that very thoroughly and carefully and then, still holding it right side up, declared hesitantly, as if he felt compelled to disagree, that there was no writing on the paper. One of the audience called his attention to the particular part of the paper on which there was writing. He glanced at it, looked back at his informant in a puzzled way, and then re-examined that part of the paper. After turning it over somewhat doubtfully and glancing at it he turned it right side up again. He then began holding it so that the light struck it obliquely and finally declared, still in a puzzled fashion, that there really was no writing on the paper.

"Finally he was given the suggestion by the hypnotist that there *was* writing and that he would see it. He glanced back at the paper in surprise and then an expression of amusement and amazement spread over his face as he saw the writing apparently for the first time. He commented on the juvenility of the handwriting, disowning it. When asked to tell what it said he showed much interest but appeared to have difficulty in deciphering the writing. The last word was incomplete; he read it, spelled it, and stated that it seemed to be only part of a word. When he was asked to guess what the word was he promptly reread the sentence in order to get the context, but was unable to guess.

"He then wanted to know why the writing had not been finished. He was informed by the hypnotist that if he would just watch the pencil on the table it would suddenly lift up in the air and begin writing the rest of the word. He looked doubtfully at the hypnotist and then said, 'Why, it's lifting up,' seeming to have no realization that his own hand was picking up the pencil to write. Gradually his hand began forming letters. Asked what the pencil was writing, he replied, 'Wait—wait; let's see'; he appeared entirely absorbed in the supposed phenomenon of a pencil writing alone. The hypnotist watched the writing, which was proceeding very slowly, and soon realized that the word in question was 'delicious.' The hypnotist then announced this to the audience while the subject was writing the last four letters. The subject looked up upon completing the word and said, 'It's delicious,' and then read the sentence to see if the word was relevant to the meaning. Apparently he had not heard the observer announce the word."²⁹

Experimental test. Messerschmidt sought to find out experimentally whether normal persons can carry on two complicated intellectual processes at the same time, one consciously and one subconsciously. She chose three excellent hypnotic subjects and, to reduce practice effects, trained them in doing serial addition and in reading aloud.

²⁹ Adapted from Erickson, *Psychoan. Quar.*, 1939, 8:347-349.

Then she determined each subject's speed of doing serial addition when awake, speed of reading aloud when awake, and the respective speeds of reading aloud consciously and doing posthypnotically induced serial addition at the same time subconsciously. She did not determine the speed of doing serial addition subconsciously by itself. When the conscious reading and the subconscious adding were undertaken together, she found that the "conscious" and the "subconscious" tasks interfered with each other markedly, and that the subconscious process slowed the conscious one. She concluded that "complicated conscious and subconscious processes do not go on independently."³⁰

It should be noted, however, that Messerschmidt limited her study to three supposedly normal persons. Ordinarily, different conscious and subconscious activities induced together in such persons show much more interference than appears in more clearly dissociated subjects, to clinical observation at least.³¹

Also, as the Ericksons remarked, Messerschmidt does not seem to have kept her subjects' "conscious" and "subconscious" tasks carefully apart by limiting the conscious activity wholly to waking life, and the posthypnotic trance effect to the mere start or conclusion of the subactivity. Thus, in the boy who had to pump 250 strokes,³² since "the posthypnotic act was an extremely limited part of a larger implied task, any posthypnotic trance manifestations would necessarily be limited to the specified posthypnotic act. Repetitions of the experiment in which the subject was instructed to count the strokes silently as the posthypnotic task itself, while spelling aloud as a conscious task, led to unsatisfactory results, specifically, confusion of the spelling with the counting. This admixture in his performance bewildered him greatly, since, as a consequence of his amnesia for the posthypnotic suggestions, he could not understand his frequent utterance of a number in place of a letter in his spelling.

"When an attempt was made to have this subject count the strokes and spell as simultaneous waking tasks, he was found to be totally unable to do so except by deliberate purposeful pauses and by a definite alternation of tasks. After much effort in this regard, the subject spontaneously suggested, '*I can guess the number of strokes better instead of trying to count them while I'm spelling.*' A test of this disclosed that

³⁰ Adapted from Ramona Messerschmidt, *J. Abn. Psychol.*, 1927, 22:329ff., 339.

³¹ Cf. 224-226, above, for an example; also Anita M. Muhl, *Automatic Writing*, 1930, 73, 126 (Steinkopf, Dresden).

³² Cf. 300, above.

the subject was able to 'guess' accurately; but when he was questioned later in the hypnotic trance, he explained that the 'guess' was only a conscious belief or understanding on his part, and that he had actually counted the strokes in the same manner as he had in the original experimental trials."³³

Cass hypnotized a group of well-trained hypnotic subjects and set them to name colors consciously and to do serial addition subconsciously at the same time, after waking. Upon comparing their performance with the same activities done separately and together in normal waking life, Cass found that the subjects differed from one another a good deal, but that every subject did the two tasks together *less* effectively when both tasks were "conscious" than when one was "conscious" and the other was "subconscious."³⁴

This outcome Cass would ascribe either to partial dissociation or to heightened motivation derived from the posthypnotic suggestions.³⁴ Certainly the latter hypothesis is possible. Nevertheless, clinical observation and subjects' reports in the more clearly dissociated cases incline us primarily to the hypothesis of dissociation; a hypothesis which, as presented in the chapter on Dissociation, recognizes complete, partial, reciprocal, and nonreciprocal dissociation. Such dissociation allows for considerable interference between conscious and subconscious systems. It allows also for some interesting working connections between conscious and subconscious systems, and between different subconscious systems.

Working connections between disparate systems. Such connections are often observed. Among them are subconscious perceptions and other reactions that are independent of conscious processes, yet bear upon the conscious processes.

Erickson told one of his hypnotic subjects, who was awake, however, to write automatically some simple thing which she and the others present could read but which would have a subconscious, further meaning. Both she and the others doubted that this could be done; but she asked what she should write. He suggested that she write her subconscious guess as to how long a different experiment on another subject had lasted (an experiment which, unfortunately, no one had timed). She had already guessed, consciously, "between two and three minutes"; and she protested that her subconscious guess would be

³³ Adapted from Erickson and Erickson, *loc. cit.*, 127, 128.

³⁴ William A. Cass, *Psychol. Bull.*, 1941, 38:744.

the same, and that there was no point in writing it automatically since she had thus verbalized it. Nevertheless, Erickson insisted that she write automatically her subconscious guess.

Very slowly, and in the uncertain, juvenile script which often characterizes automatic writing, she wrote what she and the others all read as "thirty seconds." She disputed this guess, however, and insisted that the real time was at least two minutes.

Erickson then asked the subject to examine the writing closely. She spelled out each letter, then said: "Yes, it is 'thirty seconds.'" Erickson asked further: "But isn't there something more there?" She insisted that there was not; and so did all the observers.

He then asked if he might add some questions for her to answer in automatic writing. She consented, so he asked questions, and she wrote answers automatically, as follows:

- | | |
|--------------------------------------------------|---------------|
| "Does this writing read 'thirty sec.'?" | "Yes." |
| "Does the writing have any additional meaning?" | "Yes." |
| "Can it be read?" | "Yes." |
| "Has anybody read the writing correctly?" | "No." |
| "Is 'thirty sec.' the correct reading?" | "No." |
| "Is something omitted in reading 'thirty sec.'?" | "Yes." |
| "Will you write that which has been omitted?" | "Yes." |
| "All right, write what has been omitted." | "8." |
| "What does this writing read then?" | "38 seconds." |

After the subject had read this answer she picked up the original automatic writing and said, "Yes, it does read thirty-eight; only I didn't realize that that 'y' was written as an '8,' but I can see it now." In the original writing, she had shaped the last half of the "y" into a clear "8."

Finally, Erickson asked two further questions, likewise answered in automatic writing:

- | | |
|------------------------------------------------------------------------------------------------------|----------------------|
| "Do you recall the instructions I gave you concerning combined conscious and subconscious activity?" | "Yes." |
| "Is this writing your demonstration of that?" | "Yes." ³⁵ |

Intelligence in automatic writing. Janet observed that the intelligence shown in automatic writing is not remarkable; nevertheless, he said, "clear perceptions of the exterior world and simple judgments may be established. The messages are often signed by a name, as if some rudiment of personality were forming itself there." Also, the normal consciousness that persists during the writing is much restricted.

"The subject understands less and remembers less of what is told him during the automatic writing than during the normal state.

³⁵ Abstracted from a personal communication containing a photograph of the writing.

However, certain subjects, like Marguerite, are capable of reading aloud, of understanding what they read, and of remembering it while their hand replies to quite other questions.

"This simultaneousness, it will be said, is not absolute; it would be necessary to show by exact measurement the simultaneousness of one movement of the lips and one movement of the hand. This verification, we think, would not prove anything, for we can make voluntarily two simultaneous movements, and this simultaneousness can also be produced by chance. That which is truly simultaneous and impossible to appreciate experimentally is the simultaneousness of the two series of thoughts. They seem, with some subjects, to develop simultaneously; that is all that clinical observation allows us to establish. In other cases, simultaneousness is less rigorous; the hand ceases to write for an instant while the mouth speaks, and takes it up again the next moment; there is a sort of alternation. But it is curious to notice that the phenomena group themselves, nevertheless, into two very independent series: one which the subject knows very well, the other of which he appears ignorant. There is even a discord established sometimes, a singular contradiction between these two categories of thoughts. Finally, often, even in spiritualist séances, the automatic writing cannot develop except by more and more reducing normal consciousness and even by causing it to disappear."³⁶

From what we noted of the mechanism of automatic writing, we assume that the intelligence shown in it must be less than the individual's normal intelligence by whatever amount remains separately conscious. When comparatively little remains separately conscious, as when there is a large subconscious personality in a highly intelligent individual, automatic writing may show high intelligence. Such intelligence appears in the work of Patience Worth, as described by Cory in 1919.

"Patience Worth," Cory explained, "is a subconscious personality of Mrs. John Curran, of St. Louis. About five years ago Mrs. Curran began to write, automatically, literature of an unusual character. Since that time novels, plays, and poems have appeared. Over fifteen hundred poems have been written. Two of the novels, *The Sorry Tale* and *Hope Trueblood*, have been published by Henry Holt and Company. Four additional novels are in various stages of completion. Most of this literature is conceded by critics to be of a very high order. No two of the larger works are written in the same English. They range from a very old English to one that is in nearly all respects modern. The New York

³⁶ Adapted from *The Mental State of Hystericals*, 427-429.

Sun said of *Hope Trueblood*: 'It is a story that George Eliot might not have been ashamed to own up to.' Of *The Sorry Tale*, The New York Times said: 'The long intimate tale is constructed with the precision and accuracy of a master hand. It is a wonderful, a beautiful, and a noble book.' And from the Boston Transcript's review of the same book I quote: 'The thoughtful reader will marvel at its beauty, its poetry, its power. The impression is that it is the work of a literary artist.' Mr. Reedy, the editor of *The Mirror*, and a distinguished critic, says of it: 'This is the most remarkable piece of literature I have ever read. I have no hesitation in saying that this production (I ignore any religious claim for it, and I discount that adventitious interest in the manner of its appearance) is a world literary marvel.'

"Mrs. Curran is a woman thirty-five years of age. Her education did not extend beyond the grammar school. Her general reading has been meager and desultory. She has not been abroad and has traveled but little in America. She has no experience or practice in writing and never entertained any aspiration to authorship. The one ambition of her life has been to sing. She has a good voice, and until Patience Worth 'arrived' her entire energy was given to its cultivation. No one could be more surprised and mystified by what has taken place than Mrs. Curran. It should not be inferred that Mrs. Curran is an unintelligent woman. On the contrary, she is very intelligent. Her quick intuitive understanding is recognized by all who know her well. A conversation with her, however, though based upon an extended acquaintance, does not give the impression that one is in the presence of the mind that wrote *The Sorry Tale*. And so foreign to her entire life do Patience Worth and her writings seem, that both she and Mr. Curran have, from the beginning, looked upon her as a disembodied spirit. Toward her they hold an attitude of awe and reverence.

"Before writing, Mrs. Curran appears to have no intimation of what is coming. She shares with those present complete ignorance on this point. It may be one of several novels, poetry, or general discourse. Without delay the writing proceeds, and with a speed that frequently outstrips that of the most expert longhand writer.

"When writing, Mrs. Curran goes into no trance. In other words, the primary self is not displaced, or it would be more accurate to say that the modification that occurs does not amount to an alternation of personality. To the casual observer no change is noted. There is, however, some abstraction. This is more pronounced than it was formerly. When the writing began, it was read from the board; a ouija was used, in the usual manner. But years of practice have made it possible to write with only an occasional reference to the printed letters. A general movement of the hand is now sufficient to throw the letters into the

consciousness of Mrs. Curran, and these are rapidly written as they appear. Not only do the letters appear but the entire panorama of the story seems to move before her, like pictures on a screen. Within the field of the primary consciousness there is a smaller field, and within this field the characters of the novels act their roles and are seen as vividly as on a stage. Apparently the only effort required on the part of Mrs. Curran is that involved in passivity. With the proper abstraction she receives from the secondary self the letters and imagery. The meaning of what is written is, naturally enough, frequently not understood by her.

"During an evening she may write alternately upon several novels, passing from one to the other without a moment's pause. In doing so, she changes periods of history, and passes at once into another world of feeling and action, and clothes it in a different style and language. And all of this is accomplished without the aid of manuscripts. While writing, Mrs. Curran does not have before her the finished portions of the works. A novel untouched for weeks or months will be resumed at just the point where it was broken off. One time she reproduced immediately, upon request, an early chapter of *The Sorry Tale* which had been mislaid, months having elapsed since its writing. In the most difficult part of a novel she has written as high as five thousand words in an evening. The composition is final.

"A complete record has been kept of all that has been written. Aside from the literary output, the discussions and conversations fill many volumes.

"Only a reading of the million and a half words that have been written can give an adequate idea of the great reservoir of knowledge that is accessible to this secondary personality. A careful survey of Mrs. Curran's reading from childhood leaves the problem of its source largely unsolved. What she may have heard, or rather, what may have been said in her presence, is another matter and, obviously, a far more difficult thing to determine. But a knowledge of the interests that have dominated her life forces the conclusion that most of this material did not pass into her mind through the channel of her conscious attention. What her total environment has been, and just how that environment has been appropriated, is the question. And the problem is complicated by the fact that there have been two selves, that is, two centers of apperception drawing upon that environment. Hence no history of Mrs. Curran in terms of an ordinary biography could hope to solve the problem. Not one, but two histories must be traced. So far only one has been followed.

"Is there not here, then, material for a new answer as to what a subconscious mind is capable of doing? But, one may ask, is this mind

really submerged when it does this creative work? In other words, may it not all be done at the time of writing when Mrs. Curran's abstraction permits a slight emergence above the threshold? And is not this approach to the surface a condition of lucidity?

"A brief study of the case will eliminate that possibility. It is true that some of the poems are thought out as they are written, that is, they are improvised at the time of writing. And the actual composition of the larger works probably receives at that time its final form. But it is inconceivable that these elaborate and intricately wrought novels should not have been planned before they are so hastily written. And that they are the work of previous thought is confirmed by Patience Worth's own statement.

"This means that while Mrs. Curran goes about the cares of the household, the other self, unknown to her, may be deep in an English novel. To Mrs. Curran falls the care of the needs of the body and the interests of the social life. From all this Patience Worth is free. Her mind seems to possess the effortless activity and facility of a dream, a dream without chaos. She acknowledges no tie or bond that might take her out of her dream.³⁷ And so far she has shown no desire to displace the other self and alternate with her in the role of action. To do so would result in essential modification of her consciousness, and put her under inhibitions from which she is now free. Between her and the entire active phase of life stands the buffer consciousness of Mrs. Curran. Thus the division of the self has resulted in a division of labor.

"Of the activity of the secondary self, aside from the slight contact while writing, Mrs. Curran has no knowledge. There is evidence, however, that the secondary consciousness includes much, or possibly all, of the field of the primary consciousness."³⁸

Automatic writing often gives way to automatic drawing, of which accounts and reproductions are available in the literature.³⁹

Examples from Multiple Personality

In earlier chapters, we have noted various conflicts, dissociations, and alternations which reflect disparate systems and personalities.

A disparate personality seems to be a disparate system sufficiently developed and integrated to have a relatively coordinated, rich, unified,

³⁷ Cf. the statement of B, of the B. C. A. case, that "when C is dominant, i.e., present, I can think my own thoughts undisturbed. I am in a clear, light place all my own. I do not have to think 'I must do this or that, I must go here or there,' as I must do when I am the dominant personality; I can just lie dormant, as it were, as far as physical activity is concerned, and think and remember." (Adapted from Prince, *op. cit.*, 1929, 245, or 1939, 307.)

³⁸ Adapted from Charles E. Cory, *Psychol. Rev.*, 1919, 26:397-406

³⁹ Cf. the Further References on automatic writing and drawing.

and stable life of its own. A case of multiple personality contains at least one disparate personality.

Since multiple personality can be defined only relatively, perhaps no two students in combing the literature would draw up identical lists of cases. Reports of what most students would consider clear cases are comparatively rare. Nevertheless, physicians and psychologists have recorded more than 76 such cases.⁴⁰ These cases, because they are extreme forms of personality organization, can teach us much.

Types of organization. According to the reports, in one type of case the two-or-more disparate personalities function as conscious, dominant personalities only one at a time. Every such personality is called an *alternating personality*.

In another type, one personality continues to function subconsciously, at least at times, while another is dominant, functioning consciously. The one that continues to function subconsciously is called a *coconscious personality*. Like the conscious personality, a coconscious one is aware of things going on in the world but indicates its awareness through automatic writing or some other roundabout way. A coconscious personality may also alternate with a conscious one and report then, through ordinary means, what it observed when coconscious.

In several cases, a coconscious personality has testified that it is aware not only of the outer world, but also of the thoughts of another personality in the same individual. A coconscious personality that thus knows another personality's thoughts we shall call an *intraconscious personality*.

Many alternating personalities are *mutually amnesic*, remembering none of each other's experiences, apparently because reciprocally dissociated from each other. Many, however, including all intraconscious personalities, are *one-way amnesic*; personality X remembering none of Y's experiences, but Y, all of X's, these two personalities seeming non-reciprocally dissociated from each other.

Where there are more than two personalities, certain ones may be mutually amnesic, while others are one-way amnesic. Thus different types of organization may be combined within a single case.

Qualification about types. According to the reports, for many if not all cases the several characterizations, alternating, coconscious, intra-

⁴⁰ Cf. W. S. Taylor and Mabel F. Martin, *J. Abn. Psychol.*, 1944, 39:282ff. The cases cited below are from this article or the sources which it mentions.

conscious, mutually amnesic, and one-way amnesic, are more convenient than wholly exact. Often an alternating personality does not alternate completely, but combines some elements of the repressed personality with most elements of the dominant one, and shows somewhat different combinations from time to time. Often a coconscious personality is active subconsciously in various degrees, loses some elements to and gains some from the rest of the individual, and conflicts more or less with the conscious personality. An intraconscious personality is more fully aware of the introspective experience of the other personality at some times than at others, and perhaps always misses certain elements of that experience. Mutually amnesic personalities often remember a little from each other, perhaps only a "wraith of something there," as a waking person knows that he has had a dream and can almost remember what it was about. A one-way amnesic organization is not perfectly closed to memories in the one direction and is not wholly open to them, especially to their subtler meanings, in the other direction. In a word, the several characterizations are only relatively exact.

Types of organization illustrated. A good example of the *alternating, mutually amnesic* type of multiple personality is Mr. Hanna, the minister who lost his memories in a driving accident.⁴¹ It will be recalled that Hanna developed a new personality which alternated with the original one, neither personality remembering the other, until the two were synthesized through psychotherapeutic recalls and encouragement.

Before his accident, Hanna seems to have been a fully normal man. Another example of this type of organization, Ansel Bourne, likewise a minister, had shown marked psychoneurotic symptoms over many years.

One day Bourne drew some money from his bank in Providence, paid several bills, and disappeared. Two months later he woke up in the morning frightened to find that he did not know where he was, or anything that had happened since he was in Providence, which seemed only yesterday. His neighbors told him that two weeks after the day of which he spoke he came to Norristown, Pennsylvania, introduced himself as A. J. Brown, and rented and stocked a small store. During the six weeks that followed, he ran the store, keeping house for himself in the back part of it. He also went to church regularly, and at one

⁴¹ Cf. 257, above.

prayer meeting gave an excellent talk in which he recounted an example from, as it turned out, his former life as Bourne.

When he explained who he was and where he belonged, the neighbors sent for a relative who took him back to Providence. He still could not remember his life in Norristown, and he had no idea what he had done between leaving Providence and arriving at Norristown.

Three years later, James hypnotized Bourne. Immediately, all the A. J. Brown memories came back, including the memories for the missing two weeks (which had been spent in travel, rest, and "looking around"). The subject recalled also that he had started off from Providence because "there was trouble back there" and he "wanted rest." James could not make the man remember any of his life as Bourne. "Brown" "had heard of Ansel Bourne but didn't know as he had ever met the man. When confronted with Mrs. Bourne he said that he 'had never seen the woman before,' etc."

James tried but failed to fuse the two personalities into one; each remained ignorant of the other. Brown, however, did not recur.

The *alternating, one-way amnesic* type is illustrated by Félicité X.

Félicité was a gloomy, psychoneurotic girl, at the same time highly intelligent and industrious. She worked by the day as a seamstress. Beginning when she was fourteen-and-a-half years old, at intervals of about a week, she felt pain in her temples, went into a sleep-like state for perhaps ten minutes, and awoke as another self, a second personality. This self was a happy one, apparently normal except for some hysterical bodily symptoms. After an hour or two in this personality, the subject went back into a sleep-like state and revived as her usual self. Soon these alternations occurred almost daily, and the intermediate "sleep" dwindled to two or three minutes. As the years went on, the second personality became increasingly dominant, and the transitions almost instantaneous.

Throughout all this development, in the sleep-like transitions Félicité seemed wholly unresponsive to any noises, pinches, or other stimuli that were applied.

Félicité's primary personality remembered none of the experiences of the other self. One time in her second personality she became pregnant and could not account for it in her primary personality. Often she started a piece of sewing in her second personality, then changed to her usual one and did not know how to go on with the work until someone explained to her what she had undertaken. She learned to write directions in the secondary state which would guide her when she resumed her primary self. She learned also to follow the directions surreptitiously, and otherwise to cover up her amnesia.

The second personality remembered not only its own intermittent life but also that of the primary Félida.

The *coconscious* type of organization is reported in fewer than a third of the cases surveyed, and then usually in combination with the alternating type. Erickson feels, however, that at least intermittently coconscious cases are more common than the tradition of alternating personality would suggest. Thus, he wrote in 1940 that every one of the seven cases of dual personality that he had worked with was organized somewhat as follows: "A, the original personality, now and then departs, becomes absent, and personality B, the second personality, suddenly appears and performs all of A's routine duties. Later, A returns and there are present both A and B, though A knows nothing of B. B, however, is fully aware that A has returned and simply relinquishes the direction of matters to A and stays around to give A proper advice and direction; and then, when A finally has taken adequate charge and does not need any further help, B vanishes, only to return when some stress within A summons B."⁴² Perhaps many a coconscious personality is overlooked.

If a *coconscious, mutually amnesic* type occurs it does not appear in the more accessible accounts of cases. Perhaps complete records would show that every coconscious personality is too vigorous and inclusive to permit mutual amnesia.

The most famous *coconscious, one-way amnesic* case is Miss Beauchamp, whom Morton Prince presented to the world in his first psychological book.

According to her own account, which fitted in with all that Prince observed, ever since Miss Beauchamp was a young child she had suffered conflict between her higher interests and her natural, childhood impulses. As a young woman, also, she experienced a couple of emotional shocks involving conflict between her ideals and her natural woman's impulses. Unable to work out these conflicts, she became divided into three personalities: one religious, kind, and gentle, called B I or The Saint; one playful, mischievous, and relatively uneducated, called B III or Sally; and one worldly and selfish, B IV or The Woman. A fourth personality, B II, was normal, and turned out to be not a disparate one but the real Miss Beauchamp, a synthesis of B I and B IV at least.

Two of the disparate personalities, The Saint and The Woman,

⁴² Personally communicated.

alternated with each other, also with Sally. Sally, however, when not dominant continued to function as a coconscious personality. The Saint was not amnesic for The Woman, but was amnesic for Sally. The Woman was amnesic for both The Saint and Sally. Sally, on the other hand, was amnesic only for The Saint's and The Woman's education in foreign languages, shorthand, and the like. Thus, apart from that bit of amnesia, Sally's organization with the other disparate personalities was coconscious, one-way amnesic.

The *intraconscious, one-way amnesic* type appears in at least seven of the 76 cases. One of these is B.C.A., which Prince considered more important than the Beauchamp case.

B.C.A. began to split when part of her rebelled against certain circumstances of her married life. Later, under stress involving those same circumstances, that part developed further and became a coconscious and intraconscious personality called B. The conscious personality that remained was called A. Even before B was clearly a disparate personality, "she" often worked against the conscious personality strongly enough to prevent A from doing what A wanted to do, or even to make her do what she (A) did not want to do; and after B became a disparate personality, she repressed A completely at times through alternating with her, whereupon B was very free to do what *she* liked. Eventually, Prince synthesized B and A, first partially, into a relatively incomplete personality called C; and after a while more fully, into a relatively complete C. B continued coconscious and intraconscious so long as C remained relatively incomplete.

Until Prince got B and A almost wholly together as C, both B and A kept diaries which, later, the recovered C recognized as true introspective accounts by parts of herself. These documents, together with C's and Prince's independent comments upon them, are illuminating.

For example, B observed:

"Nearly everything that happens is perceived by some part of C's mind—the rattle of a paper, the cracking of a stick in the fire, the sound of a bird chirping, the smile or frown on the face of a person whom we meet, the gleam of their teeth, etc., everything that can be seen or heard is recorded in her mind whether she is conscious of it or not. These illustrations are taken from actual occurrences which I distinctly remember. Now into my stream of consciousness most of these perceptions are absorbed, but C is conscious of only the most important ones. For example: Dr. Prince comes into the room and C rises and greets him, shakes hands and says, 'Good morning'; she is conscious of nothing but a sense of relief at seeing him and is thinking only of the woes she has to tell him; but I perceive things like this: Dr. Prince's hand is cold;

he looks tired or rested; he is nervous today; he has on such and such clothes or cravat, etc. These perceptions become my thoughts. C does not take them into her consciousness at all. Later, if she were asked if she shook hands with Dr. Prince, she might or might not remember it; as to his hand being cold and all the rest of it, she would not have noticed; if she did, it would be an *automatic* memory; she had not *thought* about it.

"When C's mind is concentrated on any one thing, like reading or studying, it is closed to every other perception. She does not notice the sounds in the house or out-of-doors, but I, being coconscious, do. I hear the blinds rattle, I hear the maid moving about the house, I hear the telephone ring, etc. She hears none of these things. She does not know that she is tired and that she ought to stop reading, but all these things I know and think of. When she stops reading she becomes conscious that she is tired, but of the sounds in the house she knows nothing. I have read the book also, but these other things are added to my stream of conscious thought. So, you see, I know all C's thoughts and think my own besides."⁴³

A and the incomplete C were amnesic for B, but B was not amnesic for them.

Differences between personalities. In most cases of multiple personality, the several personalities are unlike one another somewhere in the gamut of wishes, desires, attitudes, daily interests, sensibilities, and particular responses, to say nothing of knowledge.

In many cases the several personalities differ considerably in *quality*.

Thus, in the B.C.A. case, A was irritable, timid, grateful, loving, sympathetic, easily humiliated, melancholy, frugal, serious, neurasthenic. B, in contrast, was hearty, mischievous, indifferent to people, self-sufficient, happy, extravagant, playful, vigorous. When B became a disparate personality A was wearing mourning; but whenever possible B made the subject wear white, white without even a black belt or buckle. Prince reported that "the moon excited in A pain, in B pleasure; woods excited in A apprehension, in B pleasure; a lake, in A fear, in B joy; relatives, in A affection, in B indifference. Situations, too, that gave A sorrow, gave B joy, or it might be, pleased A and bored B. Likewise with persons: Y. aroused intense hatred, scorn, etc., in A; in B pleasant feelings."⁴⁴

B observed that "we rarely have the same opinion about any book we are reading, though we may both like it." The recovered C recalled

⁴³ Adapted from Prince, op. cit., 1929, 243-244.

⁴⁴ Adapted from Prince, *The Unconscious*, 1914 or 1921, 627 (Macmillan).

that, as A, she read serious books, poetry, "anything that touched upon the deeper problems of life." As B, on the other hand, she read mostly magazines and short stories; except that "after becoming interested in the study of psychology, I enjoyed reading on the subject as much as A did. Aside from that one subject, however, I preferred the lighter reading and, curiously enough, I liked to read stories which portrayed the very emotions which I never felt." While C was still relatively incomplete, B wrote: "When C is talking with anyone, I often disagree with what she says. I think of replies I would make quite different from the ones she makes."

Apparently these intellectual differences went along with the affective and volitional differences. As B put it, "My train of thought may be, and usually is, quite different from C's. When C is ill, for instance, she is thinking about her headache, and how hard life seems and how glad she will be when it is over, and I am thinking how tiresome it is to lie in bed when I am just aching to go for a long tramp or do something gay." Again, before she became interested in psychology, B wrote: "A has been ill all day—could not sleep last night. I hope he (Dr. Prince) won't send for us; for he will put a quietus on me, and as things are now I am gaining on A. Had a gay evening—no discussions of religion or psychology, no dissecting of hearts and souls while I am in the flesh."

The recovered C reported that "I, as B, had no patience with A's scruples and morbid ideas and actually enjoyed doing things which I knew would shock or annoy myself as A, though occasionally, as B, I felt a little sorry for A. It must be remembered that while I, as A, recognized no division of personality and considered B's acts (of which it must be kept in mind I had no memory) as my own, I, as B, did not look upon A as any part of myself. As B, I felt myself to be a distinct personality and insisted upon it to you over and over again. I realized that I was not normal but thought that A was not normal either. I believed that my own views were more correct than A's and were entitled to as much consideration, and I could never understand why you should prefer to keep A in existence rather than B. I felt that with the restoration of the normal self I could not 'come' as an alternating personality, but I believed that I should always be conscious.

"As B, I felt very grateful to you for treating me as if I were a 'real' person and allowing me to express my own personality. With everyone else I had to pretend to be A, and my feeling of gratitude and the fact that you asked for my cooperation—put me on my honor as it were—were the underlying motives in telling you so much of A's inner life. I, as B, thought A was very silly not to tell you all the things which were troubling her—as was indeed true—and it seemed to me (B) a great joke on A to get up in the night and write you a long letter

telling A's most secret thoughts and perhaps enclosing something I, as A, had written but had not really intended to send you. It is true that, as B, I was perfectly willing to tell you things which, as A, I would rather have died than disclose.

"I would often wake in the morning, as A, to find a note on my pillow or on the table—usually of a jeering tone—telling me to 'cheer up,' to 'weep no more,' etc.; sometimes these notes would be in rhyme and nearly all advised me not to trouble Dr. Prince so much. These notes were written by B when I 'changed' in the night; but, as A, I supposed when I first found them that I had written them in my sleep. If my condition had been one of remorse, it was now one of despair. After a time, as A, I destroyed all the notes I found, without reading them, hoping in this way to discourage B's fondness for writing. As a result I found one morning a sheet of paper pasted directly in the middle of my mirror. It was fastened at each corner with large red seals and bore the inscription 'READ THIS' and contained information which it was quite necessary A should have. As B, my attitude toward myself as A was something like that of a gay, irresponsible, pleasure-loving girl toward an older, more serious-minded sister."⁴⁵

In the case of Mrs. X., studied by Wholey, differences in quality between the different personalities are recorded in motion pictures.

In some cases, the personalities differ markedly in *propriety* or good behavior.

Thus Émile X., in one personality, was a respectable lawyer, but in the other was destructive and a gambler, swindler, and thief. F. in one personality was a pleasant, honest person, but in the other personality a kleptomaniac. Sörgel in one personality was quiet, pious, and industrious. In the other personality he was insane, often violent and assaultive. One time he chopped an old woodcutter to death and drank his blood.

Such Jekyll-Hyde differences between the personalities are, however, by no means the rule. Almost all of the differences in propriety reported are much less serious than the Jekyll-Hyde picture; many of the differences were much more serious for the Victorian personalities involved than they would be for us; and about half of the cases as reported show no marked differences in propriety or even deviation from the ordinary propriety of their times. In many cases, every one of the personalities seems quite decent.

⁴⁵ Adapted from *Clinical and Experimental Studies*, 1929, 246, 221-222, 244, 245-246, 223, 219-220.

Mr. Hanna had been a high-minded man up to the time of his accident, and after it the two personalities seemed to share the same general quality, except that they were less stable, and one of them lacked the original Hanna's knowledge. Likewise apparently homogeneous in propriety were the two personalities of Ansel Bourne.

A difference in *sexuality*, that is, having at least one personality either of the opposite sex or of the opposite sexual orientation, appears in only about an eighth of the cases as reported. (Mere frigidity, which might, it is true, cover up a sexuality deviation, is not considered here.) In these few cases, such differences are marked.

For example, when Violet Z. once wrote automatically with both hands at the same time, the left hand wrote small, in a feminine style, and characterized itself as a girl by the name of Aneta Glane; while the right hand wrote large, in a masculine style, and claimed to be a man named Daniel Raun. In another case, personality M.Z. was overtly heterosexual, and F.L., who alternated with her, was overtly homosexual.

Differences in apparent *youthfulness* between the different personalities are often striking.

In the B.C.A. case, A was a woman of forty, and B was like a girl of twenty. In the Beauchamp case, The Saint was an intellectual young woman, and Sally, a child of ten or twelve. The Doris Fischer and the Norma-Polly-Louise cases, likewise intellectual young women, each contained a personality "aged" less than eleven years. Thus, in Norma-Polly-Louise, at the outset Polly gave her own age as four years, could neither read nor write, talked baby talk, and tested a little under four on the Binet scale. She became different ages at different times, however. For a while she was "fifteen years old," and tested accordingly. In Mrs. X., one personality seemed to be that of an infant a year old. Some of Wholey's pictures show this personality "learning to walk."⁴⁶

Differences in *sensibility* (paresthesias, anesthetics, etc.) appear in so many cases, and occur so consistently in other forms of dissociation, that we wonder whether these differences have not merely been overlooked in the few cases for which they are not reported.

B (of the B.C.A. case) wrote: "With A, I do not feel or taste. If she closes her eyes, I cannot tell whether she is eating meat or candy unless I know beforehand." "With A," also, "I do not feel any pain, not

⁴⁶ Am. J. Psychiat., 1933, 12:686-687.

even when she has a headache. With C it is different. I know when she is touched and I know what she is eating. Should she be hurt, I would feel it but don't think it would cause me pain. It is the same with her emotions; I know what they are from her thoughts, but she *experiences* them. When she walks, my sensation is of being carried, though I see and hear and know everything and feel the ground under her feet. As an alternating personality, I have no pain. I can distinguish between touch and pain, but I do not suffer from the latter. The only difference is that pain is unpleasant. I do not know whether this would be true for severe tests or not, but I do not feel pain at the dentist's, though A and C suffer intensely." Prince verified these observations by experiments.⁴⁷

Mrs. X., when about to give birth to a child without an anesthetic, slipped into her "Susie" personality because Susie never felt pain.⁴⁸ Sally Beauchamp felt no fatigue. She was also analgesic and tactually anesthetic, except when either visual or auditory stimuli accompanied the stimuli for pain or touch. Blanche Wittmann in one phase was analgesic, tactually anesthetic, without muscle sense, deaf in one ear, weak-visioned in one eye, wholly color blind, and so on. F. in his kleptomaniac personality was deaf, and, except for objects associated with touch, was blind; he seemed to be guided solely by touch and kinesthesia. A subject who contained "Jorge Isaacs," according to Mühl, felt for a time that she was divided into a regular body and "a very light floating image of herself suspended parallel to her."

Many subjects with differences in sensibility do not merely lack certain sensations but have some that they ought not to have. Perhaps this was true in the case just cited. Certainly it was true in X., one of whose personalities raved with pain from headache and was always thirsty. Charles W. in one personality suffered constant pain and tenderness which was thought to mean a hepatic abscess; but in the other personality he was well. One of Mrs. J.'s personalities, and many other disparate personalities that have been recorded, suffered various pains, hyperesthesias, and paresthesias. Often these sensory abnormalities are combined with affective and volitional abnormalities in a typical syndrome of neurasthenia, psychasthenia, or hysteria.

Differences in *particular responses* are no less common than differences in sensibility.

Blanche Wittmann in one personality was paralyzed, and in the other, normal. One personality of Félicité X. showed both paralyzes and

⁴⁷ Adapted from *Clinical and Experimental Studies*, 1929, 246-247.

⁴⁸ Wholey, loc. cit., 660.

contractures which disappeared in the other personality. One of Marcelline R.'s personalities was paralyzed and suffered from uncontrollable vomiting which threatened her life. Her other personality was normal. One of the Mollie Fancher personalities had paralyses and contractures and could not speak. Louis Vivé's different personalities' paralyses and contractures are shown in photogravures in Bourru and Burot's book.¹⁵ In many a case of multiple personality, at least one of the personalities does automatic writing. Commonly, too, the different personalities have different handwritings. The personalities differ likewise in other skills. One case in one phase was ambidextrous and understood English only, but in the other phase was left-handed and spoke Welsh.

Comparison between conscious and subconscious personalities. Given any difference between a conscious and a subconscious personality, it might seem that the inferior personality should be the subconscious one, kept down as much as possible, and that the better personality should be the dominant, conscious one. In many cases it is so; but in others, the less evident personality is the better one, in culture, genius, sanity, morality, health, or a combination of these.

Patience Worth, the coconscious personality of Mrs. Curran, excelled Mrs. Curran not only in intellect. Cory observed that "Patience Worth, in conversation [through automatic writing], displays a quickness of insight, a readiness of repartee that enables her to hold her own in the company of the learned. Here is a mentality of a very high order. It is original, creative, possessing a delicate sense of beauty, a hardy rationality, and, above all, and perhaps most surprising, a moral and spiritual elevation."

Indeed, as Cory pointed out, Patience Worth seemed to be deluded upon only one point: "She insists that she is the discarnate spirit of an English woman who lived in an age now long since passed. She not only insists upon it, but she argues her claim at length, and with cleverness. That she is honest in this belief there is no reason to doubt. The full history of this idea that she is a returned spirit can be secured only by psychoanalysis. But it is worth noting that Patience Worth made her appearance after Mrs. Curran had spent many evenings with a friend, a confirmed spiritualist, with a view of getting a message from the spirit world. In the atmosphere of expectancy, of hope that a voice from the dead might be heard, she may be said to have been born, and it is more than possible that the idea became, at that time, a vital part

of the dissociated self then developing. Thus in this self is found just that idea that would sever it most completely from the dominant personality of Mrs. Curran. This idea, although having, I believe, nothing to do with the real cause of the disintegration, has helped shape and mould her character. What is more, she has lived in the atmosphere of the idea ever since the day of her appearance, those about her acting their part in sustaining the delusion."⁴⁹

Félida X.'s conscious personality was, as we have seen, very poorly integrated; she was depressed, had paralyses and contractures, and was subject also to various pains and a hysterical hemorrhage from her lungs. Her subconscious personality, which turned out to be essentially her normal, inclusive one, had only a few stigmata which diminished as this personality grew to occupy more of her time and being.

In Anna Winsor, the "Old Stump" case cited earlier,⁴⁹ the conscious personality was a raving maniac and made all of the body except the right hand act as such. In contrast, the coconscious personality was rational and, through the right hand, grasped the left to keep it from injuring the subject herself, tried to keep her properly covered at night, rapped on the headboard to warn her mother when anything went wrong, and between times wrote intelligent letters, poems, questions, and answers to questions.

Cooperation between disparate personalities. Though often mutually opposed to each other, it is not unusual for one disparate personality to sympathize with another and even to help that other. Apparently every disparate personality perceives that whatever is vital for one personality is vital for all, physically if not spiritually.

B's somewhat sisterly feeling for A has been mentioned, also B's seeing to it that A receive necessary information.⁵⁰ B, Sally Beauchamp, also further cases, Milly P., Miss Brown, and others, as coconscious personalities, wrote to their physicians notes calculated to protect and to help cure at least the conscious personalities of these same patients. As C put it, "Even as B, feeling sure that the integration of the whole self meant my own extinction, I still, for the most part, gave my help toward that end."⁵¹ She must have felt, too, that this extinction both of herself, B, and of her rival, A, meant a richer life as C.

"Old Stump's" care for her crazy conscious self will be remembered.

⁴⁹ Cf. 204-205, above.

⁵⁰ Cf. 319, above.

⁵¹ *Clinical and Experimental Studies*, 1929, 220. Cf. also T. W. Mitchell, *Pro. Soc. Psychical Res. (E.)*, 1912, 26:310.

A General View of the Subconscious

Every individual who is mentally alive has a conscious mind in the sense of a dominant, primary, or main consciousness. To be sure, this consciousness is not a fixed thing, like a crown which the individual might wear constantly; it is a dynamic organization, constantly changing. Nevertheless, it is a consciousness characteristic of him so long as he is awake and no other consciousness displaces this one. When he is asleep and dreaming, he has a somewhat different consciousness, again a dynamic organization, but usually too limited and unstable to be characteristic of him as a whole. We therefore think of his dreaming consciousness as a subordinate consciousness. Even this dreaming consciousness may be dominant over some still more subordinate consciousness; for example, the sleeping individual may dream and talk about one topic while writing automatically about another topic. The dreaming consciousness, however, does not dominate his life as his characteristic waking consciousness seems to do. Accordingly, we shall call only the characteristic waking consciousness the dominant consciousness or the conscious mind.

Whatever psychological elements, processes, and patterns occur within the individual yet outside his dominant consciousness we are calling "subconscious." All such items together we take to be "the subconscious." Is there then a separate subconsciousness, existing as a unit, essentially the same in all persons, and with properties unique to it?

Some striking phenomena of subconscious mental life suggest that there is such a separate subconsciousness. More complete data, however, suggest the view that follows.

Characteristics of the subconscious. In reality, the subconscious is not clearly marked off from the conscious mind, the dominant consciousness. This is true in several ways.

(1) The subconscious is not sharply separated from the dominant consciousness. Just as alternating personalities and coconscious personalities are not completely walled off from the rest of the individual, so there is no tight wall between the subconscious in general and the conscious mind. In extreme cases, much of the subconscious is abnormally separate from the conscious mind; but the more normal the individual, the more his subconscious motives and other items are continuous and freely interchanging with those of his dominant consciousness.

(2) The subconscious, however much separated abnormally from the conscious mind, is never a unit, perfectly integrated within itself. True, complexes all of one kind, such as fear, often organize themselves into a disparate system of that same kind, a system which is well integrated within itself. Such a system may look like a unitary subconsciousness. Nevertheless, in every case there remain many latent if not active elements of the subconscious which are not integrated with the disparate system. Moreover, in many a case the complexes are of different kinds, and conflict with each other, perhaps organizing into mutually conflicting systems or even personalities. Also, though complexes of a given kind tend to form a system by themselves, they tend, too, to integrate with various conscious patterns toward integration of the individual as a whole. This makes against unification of the subconscious as such. Normally, the subconscious seems no more unified in itself than with the conscious mind.

(3) The subconscious is no ancestrally completed structure, with fixed reactions either direct or symbolic. Thus, no intelligible "archetypes," racial forms of thought, and symbols of expression are peculiar to the subconscious, so far as we know. The similarities between subconscious organizations of different individuals can be explained in other ways; and the individual differences in subconscious organizations are often far more important, both for therapy and for theory, than the similarities.

(4) The subconscious is not wholly good, morally, culturally, or spiritually, as compared with the conscious mind; in other words, the subconscious is no heavenly force, tending always to raise the conscious mind up toward the same high level. The subconscious has resources, undoubtedly; but they are human resources.

(5) Neither is the subconscious wholly bad, or even wholly primitive, as compared with the conscious mind. Certainly the young human individual is primitive all through, and any unacceptable urges not normally inhibited tend to become subconscious through repression. Still, the conscious mind remains human and, under special circumstances, represses motives and patterns which a fuller view shows are better than some that remain conscious.

In brief, the subconscious is more or less continuous with the conscious mind; is no entity or unit in itself; is individual; and, morally, culturally, and spiritually, is of the same stuffs as the conscious mind, though not necessarily in the same proportions. Thus the subconscious seems not to differ from the conscious mind essentially.

Nevertheless, the subconscious does differ from the conscious mind adventitiously, in four ways:

(1) The subconscious is outside the conscious mind, in the sense that the motives, reactions, and other items that compose the subconscious are not within the dominant consciousness at the moment; the dominant consciousness is unaware of them.

(2) The subconscious is less fully active than the conscious mind. Apparently, the conscious mind represents those higher levels all of which are active about a given topic. The various parts of the subconscious, on the other hand, are variously active; some of them may be overactive, but, at any given moment, many are quite inactive.

(3) The subconscious is relatively inarticulate. True, in extreme cases like Patience Worth and "Old Stump," a subconscious personality is marvelously articulate; yet it can express itself only through special affects, hallucinations, resistances, errors, automatic writing, and similar ways that seem foreign to the dominant consciousness. Also, even in such cases, many elements of the subconscious remain inactive, hence are inarticulate.

(4) The subconscious is relatively inaccessible to other people. This is because the dominant consciousness is most fully active and commonly expresses itself through the means to which people are accustomed.

The question of subconscious consciousness. Everyone who holds that the individual can have no consciousness other than his dominant consciousness seems to assume that consciousness must be a single unit, attached to the body in only one place, or correlated with some single, **unitary functioning of the body.**

It is true that the nervous system seems essential to consciousness, and that through the nervous system the body tends always to function in an integrated way. As we have seen, however, the nervous system is engaged not in serving any one part of the body but in integrating, so far as possible, all the parts into one fully adjusted life. Within the nervous system are many levels. These levels are continuous with one another, genetically, structurally, and functionally. It is hard to think of consciousness beginning suddenly, either in phylogeny or in ontogeny, at a particular level of the nervous system. It is hard likewise to think of consciousness as limited to only the highest level, whatever that may be. It seems more natural to suppose that consciousness develops with the nervous system, and that different grades of conscious-

ness may be correlated with the functioning of different levels, even when those levels are functioning at one and the same time.

Moreover, the tendency to integration must work always against contrary tendencies, namely, fatigue and other disintegrative agents, and excitations to mutually conflicting reactions. Normally, the organism resolves its conflicts fairly well; but abnormally, as we have seen, the conflicts lead to special dissociations. Since these dissociations occur most readily in the highest levels, and the highest levels are extensive, various disparate patterns, complexes, systems, and even personalities result. Such patterns, being strongly motivated, tend to function; but, being dissociated from the dominant consciousness, in order to function they must either alternate with the dominant consciousness, or go on coconsciously with it, or both. According to the evidence before us, some alternate, some go on coconsciously, and some do both.

To be sure, the fact that disparate patterns function does not prove that they are conscious in themselves. But neither does the fact that you function prove to me that you are conscious. I assume that everything that I do is caused, and that, if you knew enough about me and my world, you could predict everything that I do. In the same way I assume that, if I knew enough, I could predict everything that you do. I observe also, if I observe anything, that I am conscious. I observe further that you do various and complicated things much as I do. This makes me think that you are much like me. True, perhaps you are only a machine that works, plays, rests, talks, laughs, looks bored, and so on, without the slightest feeling or any awareness whatsoever on your part; even your protestations that you are conscious may be physical neuromuscular reactions only. But if I think of you and everybody else in this way, I feel not merely isolated and peculiar: I am seriously puzzled as to why the analogy between you and me breaks down at such a vital point. Consequently, I find it not merely pleasanter, but simpler, to assume that you are conscious like myself. In like manner, it seems simpler to assume that a disparate, subconscious personality that perceives, learns, infers, and acts much like a complete person is rather similarly conscious; and that a lesser disparate, subconsciously active pattern is merely less conscious.

A view often put forward is that so-called coconscious activities must involve only a single consciousness which oscillates rapidly between the "conscious" and the "coconscious" activities. Oscillation of consciousness between different activities is familiar to everyone; and that

it occurs between conscious and what are called coconscious activities seems possible.⁵² Here again the question turns not upon proof but upon economy of interpretation. Such quick alternations of consciousness, especially between the more complicated and creative disparate activities, would seem hard to explain. It seems like saying that there can be only a single consciousness which oscillates rapidly between your activities and mine. It seems simpler to assume that any organization of psychological processes has its own consciousness, though not necessarily a highly developed consciousness.

This does not mean that the subconscious is somehow conscious throughout. On the contrary, if it is true that much of the subconscious at any given moment is inactive, and that consciousness is correlated only with *processes* in the neurons, the inactive parts of the subconscious must be not conscious, so long as they remain inactive.

In fine, it seems that many parts of the subconscious are subordinatedly conscious; some parts, in abnormal cases at least, are disparately conscious; and many parts are not conscious at all.

Definitions Implicated

Perhaps most useful in dealing with the subconscious are the following definitions, some of which have been suggested already. These definitions, together with the discussion of mechanisms in the next section, follow largely a scheme worked out by Harold E. Pressey, somewhat after Morton Prince and others.⁵³

Subconscious. Evidently, the individual's psychology is not limited to his dominant consciousness, his conscious mind, of the moment. Within him, yet outside his dominant consciousness, are many active and countless inactive feelings, habits, memories, perceptions, thoughts, wishes, decisions, and tendencies to action. All such items we shall call subconscious. *Subconscious means actively or inactively psychological within the individual yet outside his dominant consciousness of the moment.*

The subconscious. Since the various subconscious items together seem more or less continuous with and like the conscious mental life

⁵² Prince admitted this, in *J. Abn. Psychol.*, 1924, 19:130.

⁵³ Harold E. Pressey, *J. Abn. Psychol.*, 1926, 21:277-283, 1927, 22:89; or Taylor, *Readings*, 484-491. Cf. William James, *Principles of Psychology*, 1890, 1:399, *The Varieties of Religious Experience*, 1902, 511-512 (Longmans),

of the same individual, neither the subconscious nor the conscious mind can be an entity in the sense that the individual is an entity. *The subconscious is a name for all the items that are subconscious.*

A more popular name for those same items has long been "the unconscious." Accordingly, Prince entitled his most systematic treatise *The Unconscious*; but inside the book he called the same territory "the subconscious," and limited "the unconscious" to the wholly non-conscious part of the subconscious.⁵⁴ Jastrow, however, called his own book *The Subconscious*.⁵⁵

The term "the subconscious" seems preferable because of its connotations. "The subconscious" suggests "less conscious," "subordinately conscious," and "subordinate to consciousness." Together, these three meanings seem to cover all and no more than the relevant data, as follows:

(1) All psychological processes which are integrated with the dominant consciousness, yet are not sufficiently conscious in themselves to be noticed as a part of that consciousness, are less conscious, in that their consciousness is relatively low in intensity.

(2) Any psychological processes which are disparate from the dominant consciousness are kept behind the scenes as unofficial, and are considered unofficial both by the dominant consciousness and by most other people. This is true even of such superior developments as Patience Worth and "Old Stump." In the Patience Worth case, the dominant Mrs. Curran was proud of Patience Worth and listened to her with respect, yet considered her only a guest and not the hostess. The neighbors and friends who likewise admired Patience Worth and sought messages from her approached her through Mrs. Curran. In the other case, the dominant consciousness cruelly subordinated the sane personality which she called "Old Stump" and, however crazily, kept herself before the world as the reigning one. Most people expect to deal with what consciousness an individual shows ordinarily, and not with any automatically writing consciousness which perhaps must be whispered to through a particular ear. Consequently, any psychological processes disparate from the dominant consciousness are subordinately conscious, in that their consciousness is relatively low in dignity.

(3) All psychological elements which are inactive, and so not conscious, remain liable to function as part of, and then to lapse from, some system of consciousness. Thus all such elements are subordinate

⁵⁴ Personally communicated. Cf. *The Unconscious*, 1914, 253.

⁵⁵ 1905.

to consciousness, in that the dominant consciousness may seem to take them up or let them drop as needed.

"Unconscious," on the other hand, suggests "not conscious at all." This meaning applies well to the inactive elements which we have mentioned, and we shall call them unconscious. The term, however, fails to connote those phenomena which seem to be subordinately conscious. Also, it seems unlikely that all the unconscious elements can ever be organized into a single, disparate system. Consequently, we prefer not to use the nounal phrase "the unconscious." We shall use only the adjective, "unconscious," to mean inactive elements; and we shall include those elements, together with all other than dominantly conscious elements, under "the subconscious."

Another name for the subconscious is "the subliminal." This name was used especially by Frederic W. H. Myers and has been popular in psychical research circles. Because it has acquired metaphysical connotations there and is relatively unfamiliar in psychology, we shall not use it.

Finally, a name often used is "the secondary consciousness." This name is ambiguous, because it suggests both (1) a subordinate disparate personality and (2) the inclusive territory we have been surveying. We shall call every disparate personality subconscious, alternating, coconscious, or intraconscious, according to the case, or by an individual name; and we shall call the inclusive territory "the subconscious."

The normal subconscious. In a normal person, most if not all psychological processes are integrated with the dominant consciousness, and most if not all inactive psychological elements are ready to be integrated with that consciousness at any time. Thus, a normal person works out a puzzle not only with his dominant consciousness but also with many subconscious perceptions, habits, memories, and so on, which integrate with his dominant consciousness in solving the puzzle. *The normal subconscious consists of all subconscious items actually or readily integrated with the normal consciousness.*

Disconscious. In an abnormal person, various patterns are not normally available to the dominant consciousness, but work against it or are dissociated from it. Examples are complexes and disparate personalities. To distinguish all such patterns from the normal subconscious, we shall call them disconscious. *Disconscious means disparately subconscious.*

Twilight integrations. Probably every normal person experiences hypnagogia (the partly integrated and partly dissociated state between waking and sleeping), has dreams, and can be hypnotized more or less deeply. Neither hypnagogia, dreaming, nor hypnosis is limited to only one form; rather, there are various forms, even within a given individual.

Certain extraordinary forms of hypnagogia, dreaming, and hypnosis, respectively, approximate the dominant consciousness; other forms reflect the normal subconscious; and others amount to disparately subconscious patterns. Apart from these extraordinary forms, however, hypnagogia, dreaming, hypnosis, and like states are not sufficiently active and integrated to be either the dominant consciousness or the normal subconscious, and not sufficiently opposed to or dissociated from the dominant consciousness and the normal subconscious to be disparately subconscious. At the same time, hypnagogia and the other states mentioned draw variously upon the dominant consciousness, upon the normal subconscious, and perhaps upon whatever disparately subconscious patterns the individual may contain.

Thus ordinary hypnagogia and other such states combine dissociation with new synthesis; they are partial integrations, common to normal people and abnormal people alike; they are on the border, not between health and disease, but between waking integration and general dissociation. Since they occur particularly between waking and deep sleep, we shall call these states twilight integrations. *Twilight integrations include ordinary hypnagogia, dreaming, hypnosis, and like states.*

Coconscious. In some abnormal persons, at least at times, it appears that some disconscious patterns—conditioned reflexes, habits, complexes, systems, personalities—are active at once independently of and simultaneously with the dominant consciousness. Every such independently and simultaneously active pattern we shall call coconscious. *Coconscious means disconsciously active while the dominant consciousness is active.*

Intraconscious. Some coconscious personalities, according to the evidence, know the thoughts of one or more other personalities within the same individual. *Intraconscious means coconsciously aware of another personality's thoughts.*

Unconscious. The elements and patterns which are inactive, at least momentarily, whether in the normal subconscious or in disconscious

patterns, we have taken to be unconscious. Often, too, a normally conscious person is unconscious of some particular thing, such as of a mistake he has made, or of something at hand which he wants but has not yet perceived. In him, the pattern of perception of that thing is not functioning, and he is unconscious of the thing. Also, ordinarily through sleep, and extraordinarily through injury, most if not all of the higher patterns cease to function, and the individual becomes more or less unconscious of the world in general. Accordingly, *unconscious means inactive and unaware.*

Mechanisms of the Subconscious

The subconscious seems best explained through all the mechanisms presented in earlier pages, including motives, reactions, connector processes, conflict, dissociation, learning, acquired patterns, and the particular mechanisms implicated within these. Here we shall suggest merely the neural mechanisms, including the cortical ones, and shall mention some of the particular mechanisms to be taken up in other chapters. Throughout this section, the indicative statements are for simplicity only: the view is hypothetical.

Connectors and the subconscious. Beginning with attention or focal awareness, which is the highest or clearest part of the dominant consciousness, the dominant consciousness shades off through intermediate and marginal or peripheral consciousness into the subconscious. Of the neural processes implicated, those correlated with the highest or clearest consciousness are processes of the most dominant, higher parts of the nervous system; and those correlated with subordinate grades of consciousness are processes of functionally subordinate parts, cortical, subcortical, or both.

The normal subconscious implicates a host of neural processes which are integrated with the dominant consciousness, and contains countless inactive elements which are ready to be aroused and integrated as needed. These various processes and elements remain functionally, however, subordinate to all the processes of the dominant consciousness.

Disconscious patterns inhere in such higher and lower parts of the nervous system as are neither actually nor readily integrated with the dominant consciousness.

Twilight integrations involve some parts of various levels.

Coconscious processes inhere in whatever parts are active disconsciously while other parts are supporting the dominant consciousness.

Intraconscious processes involve parts that are active coconsciously yet are somewhat narrowly integrated, apparently in a one-way fashion, with the parts that support the dominant consciousness.

Unconscious elements represent at least momentarily inactive parts of various levels of the nervous system.

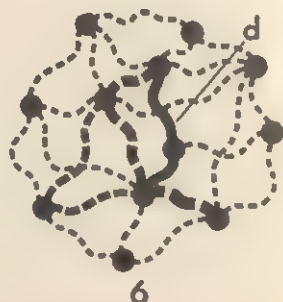
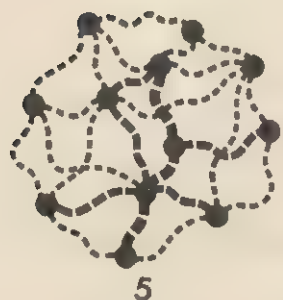
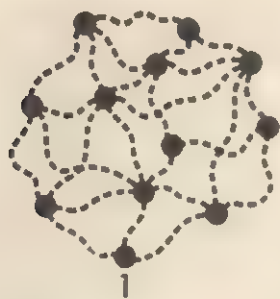
The cortical organizations implied. Central to the neural mechanisms of the dominant consciousness and of the higher forms of the sub-conscious, normal and abnormal, are cortical neurons and their inter-connections. Pressey's drawings⁵³ on pages 334 and 335 suggest these cortical elements in various conscious and subconscious types of organization.

The drawings consist of large dots connected by lines. The dots stand for cortical neurons. The lines stand for cortical connections, hereinafter called simply connections. The lines are of two general types, namely, broken and solid. The broken lines represent inactive connections, connections which are not functioning at the moment. Of these lines, the lightest represent the inactive connections which are least readily arousable; the somewhat heavier, somewhat more readily arousable; the still heavier, still more readily arousable; and the heaviest, most readily arousable, perhaps because intensively or recently practiced. The solid lines, all of which are heavy, represent actually functioning connections.

Of course, every one of the drawings is vastly simplified: the few dots represent myriads of neurons, and the few lines, multiple inter-connections. The types of organization suggested, also, are remarkably uncomplicated. If these limitations are kept in mind, however, the drawings may be helpful toward understanding the complicated realities of the subconscious.

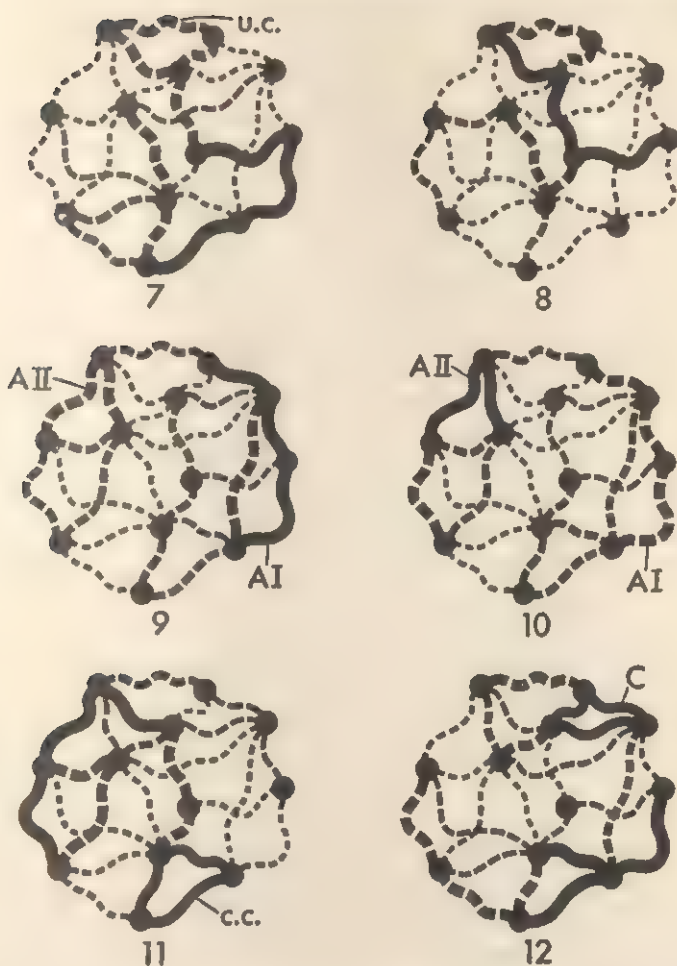
The drawing numbered 1 suggests the cortical organization of a sleeping infant. For contrast with what follows, all of the infant's connections are assumed to be least ready to function and therewith non-functioning. Accordingly, all of the lines in this drawing are the lightest broken lines.

2 represents a child who is awake. Like the infant, he has many connections which are least ready to function, suggested by the lightest broken lines. Unlike the infant, however, he has some cortical habits, memories, acquired patterns, which are inactive and not very readily arousable, suggested by the somewhat heavier broken lines; he has some such acquirements which are most readily arousable, suggested



Normal Conscious and Subconscious Organizations

- 1 Infant asleep.
- 2 Child awake.
- 3 Normal adult awake.
- 4 Same a moment later.
- 5 Same individual sleeping dreamlessly (if ever).
- 6 Same partially integrated (e. g., dreaming or hypnotized).



Disconscious Organizations
(All of these subjects are awake)

- 7 Adult with an unconscious complex, u.c.
- 8 Same individual somewhat reintegrating the complex (e. g., through hypnosis).
- 9 Adult with two alternating personalities, A I conscious and A II unconscious.
- 10 Same alternated, A II conscious and A I unconscious.
- 11 Adult with a coconscious complex, c.c.
- 12 Adult with a coconscious personality, C.

by the heaviest broken lines; and he has some functioning connections, the solid lines.

3 represents the cortical organization of a normal adult who is awake. As compared with the child, the adult has more of the moderately arousable, the readily arousable, and the functioning connections.

4 shows the same adult a moment later. Here the pattern which was functioning in 3 has become newly inactive, hence is represented by heavy broken lines; while another pattern has begun to function, as suggested by the solid lines.

In 5, the same adult is sleeping dreamlessly (assuming that this ever occurs). Accordingly, all of his connections are inactive; all of the lines are broken. Some of the connections, however, are very ready to be aroused, as shown by the heaviest broken lines.

In 6, he is partially integrated, say through dreaming or through hypnosis. The partial integration, represented by the solid line at *d*, includes part of the most ready pattern shown in 5.

These six drawings suggest the normal conscious and normal subconscious types of organization of the cortex. The remaining six suggest disconscious types.

7, the first of the disconscious group, is an adult with an unconscious complex, i.e., a complex which is inactive for the moment at least. This complex appears in the heavy broken lines at *u.c.* It is dissociated from the dominant consciousness, except that one relatively ready connection, nearly vertical on the drawing, remains between the complex and the dominant consciousness. This relatively ready connection offers a way for the complex to link with part of the dominant consciousness in dreams, hypnosis, and the like.

In 8, through that connection, part of the complex has become aroused and reintegrated with part of the dominant consciousness, through dreaming, hypnosis, or some other state which conduces to a new synthesis. This reintegration appears in the solid line. For so long as the part of the complex thus aroused remains active, it ceases to be unconscious; and if any of the complex remains normally integrable with the dominant consciousness, at least that much of the complex ceases to be disconscious.

9 shows an adult with two alternating personalities, *A I* and *A II*, of which *A I* is conscious and *A II* is unconscious. Between the two personalities there remains a relatively ready connection at the top of the drawing.

In 10, perhaps through that connection, the personalities have alter-

nated so that now *AI* is conscious and *AI* is unconscious. Consequently, the *AI* heavy lines which were solid in 9 are broken in this drawing, and the *AI* heavy lines are solid.

I1 and *I2* stand for adults with a coconscious complex, *c. c.*, and a coconscious personality, *C.*, respectively. Since both of these disconscious patterns are functioning, they are represented by solid lines.

Thus the several drawings suggest in some perspective every type of subconscious organization except the intraconscious type. Perhaps intraconscious organization could be represented in the last of the drawings by slightly darkening a connection, to suggest a one-way linkage, between the portion which stands for the conscious personality and the one which stands for the coconscious personality.

Some special mechanisms. The mechanisms of the subconscious include not only the motives, reactions, connectors, and other basic factors presented previously, but also the special mechanisms of attention, perception, thought, action, and ensuing topics. Since these special mechanisms enter largely into general dynamic and abnormal psychology, we shall take them up in the chapters that follow.

The Subconscious in Tabular Perspective

The foregoing divisions and mechanisms of consciousness and the subconscious are summarized in the table on page 338.

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The Subconscious in Tabular Perspective

ZONES		NEURAL CORRELATES	
Normal		Active	Inactive--Unconscious
THE DOMINANT CONSCIOUSNESS		Processes of parts functionally:	
<i>Attention or focal awareness</i>		most dominant.	
<i>Intermediate awareness</i>		somewhat subordinate.	
<i>Marginal or peripheral awareness</i>		further subordinate.	
THE SUBCONSCIOUS		markedly subordinate:	Parts ready to be aroused and integrated:
<i>The normal subconscious</i>		to and integrated with the dominant consciousness.	with the dominant consciousness.
<i>Twilight integrations</i>		yet of various levels.	
Abnormal			
Disconscious		to, dispartate from, and	dispartately from the dominant consciousness.
<i>Alternating</i>		displacing the dominant consciousness.	" " " " " "
<i>Cococonscious</i>		active at the same time with the dominant consciousness.	" " " " " "
<i>Intraconscious</i>		cococonscious with the dominant consciousness, also including the thoughts of that or another consciousness.	" " " " " "

1939, 8:471-509; Erickson and Elizabeth Moore Erickson, *J. Gen. Psychol.*, 1941, 24:129-131; PA 1 622, 22 406, 27 5998.

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14 | Attention and Perception

Men and animals from their very birth perceive by nature those feelings which reach the soul through the body; but reflections on the essence of these and on their use come to those who have them only after effort and with the lapse of years through education and a wide experience.

Socrates

Some psychologists avoid the term "attention" as implying an animistic mental power which no scientific study has been able to discover. Meanwhile, parents, teachers, salesmen, propagandists, educators, and many psychologists continue to use the term, apparently because they need it. If we take "attention" to mean not a self-going power but an important aspect of mental life, it becomes a useful heading for such significant phenomena as enhanced attention, narrowed attention, inattention, distractibility, preoccupation, and divided attention. It also is closely related to perception, under which we shall consider extraordinary perception, imperception, disorientation, and abnormal illusions.

Attention

What is attention? So far as we know, attention is not an entity, not a structure that does anything. It is only an aspect of a process. It is *the selective aspect of conscious reaction.*

This means that attention is no more important than the process of conscious reaction. Since we have assumed that consciousness itself

does nothing, but is correlated with reactions especially of the higher neural levels,¹ attention is no more important than those reactions. Those reactions, however, are important largely because their natural causes and limits make them selective. Attention is the name for this truth.

Attention is, of course, inseparable from consciousness; according to our definition, there can be no attention without consciousness of some kind, and no consciousness without some attention. The term attention, however, points to the selectivity of whatever factors produce consciousness. Also, attention means particularly the clearer levels of consciousness, the levels which relate to the most selected objects of any given moment. For this emphasis, "the field of attention" is often used, after the analogy of the field of vision.

Characteristics of attention. Here we shall merely recapitulate the characteristics of attention and suggest how each is important in dynamic and abnormal psychology.

Like the field of vision, attention is a *limited field*, even though it changes from moment to moment.² Confusion and conflict often arise because one cannot attend to all the significant aspects of a complex situation at the same moment—the situation is "too much" for one. Surprising inhibitions, if not dissociations, may result.

Hippocrates remarked that "of two pains occurring together in different parts of the body, the stronger weakens the other."

Rosett reported this experience: "While suffering from an intense toothache in an isolated house in the mountains early one morning, I heard the cry of the cook downstairs that the oil stove was aflame. I ran down, put out the flame, then returned and proceeded to dress for breakfast. The idea of dressing for breakfast seeming strange, I recollected that some time earlier in the morning I had been annoyed by the thought that I would not be able to eat breakfast on account of the toothache. It dawned on me that the intense pain had entirely disappeared. It was not before the expiration of fifteen minutes or more that the gradually returning pain attained its former severity.

"A young woman told me the following. While she was in bed, suffering the agonizing pains of a severe attack of frontal sinusitis, her doorbell rang. She opened the door and received a package delivered

¹ Cf. 183-184, above.

² Cf. Edwin G. Boring, *The Physical Dimensions of Consciousness*, 1933, 194-198 (Century); Robert S. Woodworth, *Experimental Psychology*, 1938, 684-695 (Holt); James Grier Miller, *Unconsciousness*, 1942, 167-168 (Wiley).

by the mail carrier, which she immediately opened. It contained an assortment of her favorite delicacies. After putting away the package, she went back to bed and to the hot-water bottle. She then discovered that she was free from pain. The latter soon returned, however, and in a few minutes was as severe as ever."³

Thus it is that a man can
 "... hold a fire in his hand
 By thinking on the frosty Caucasus,"

or

"Wallow naked in December snow,
 By thinking on fantastic summer's heat";

for, as Tuke observed, a sufficiently intense ideational process "can forestall or supplant the sensation derived from a peripheral impression."⁴

It would be interesting to know more than we do about the scope of attention in various abnormal conditions.

Apparently every field of attention shows *unitariness*, that is, it is somehow one field, though neither homogeneous nor constant. In certain abnormal cases, however, there seem to be two or more fields of attention, each with its own unitariness.

Every field of attention has *levels of clearness* or "*attensity*," descending from the "*focus*" to the "*fringe*" or "*margin*." The fine questions about numbers of levels, their contours, and individual differences in levels according to age, temperament, preoccupation, health, and so on, remain unanswered. It seems, however, that the range of attention decreases as the clearness of any part of the field increases.⁵ This observation may cast some light on "single-track mindedness," "hypnotic fascination," and the like.

John Hunter said: "I am confident that I can fix my attention to any part until I have a sensation in that part."

When Tuke asked a group of persons to concentrate upon their little fingers for five or ten minutes, most subjects felt extra weight and tingling, and some felt pains or other marked sensations, in those fingers.⁶

Braid asked four men who were from 40 to 56 years of age and in good health to place their hands, palms up, on a table, look at their

³ Joshua Rosett, *The Mechanism of Thought, Imagery, and Hallucination*, 1939, 187-188 (Columbia Univ. Press).

⁴ Daniel Hack Tuke, *Illustrations*, 1873, 44-45.

⁵ Cf. Miller, *op. cit.*, 178; Dwight W. Chapman, *Psychol. Bull.*, 1914, 31:670; and, for a psychophysiological explanation, Franklin C. Paschal, *ibid.*, 1940, 37:423.

⁶ Observed by Tuke, *loc. cit.*

own palms intently for a few minutes, and note the result. After about five minutes, one of the men, a talented author, said that he thought for some time that nothing was going to happen, but that finally he felt a darting, pricking sensation in his palm as from electric sparks. Another man, a member of the Royal Academy, experienced great cold in his hand. A third subject, who recently had been a mayor, reported uncomfortable heat instead. The fourth man, who was secretary to an important association, had become rigidly cataleptic, with his arm fixed to the table.⁷

Holland observed that "in hypochondria, the patient, by fixing his attention on internal organs, creates not merely disordered sensations, but disordered action in them." Thus, in a person with a tendency to an irregular pulse, the irregularity is brought on and increased by attention to the pulse. A physician who had an insufficiency of the mitral valves was hardly ever inconvenienced by it except when he had to examine a patient with heart disease.

Tuckey added that it is well established that morbid concentration upon some organic structures can bring about alterations of tissue.

On the other hand, he said, "we sometimes come across people who tell us they 'have no time to be ill.' Hale old age is more frequently attained by those who have led busy lives than by idlers. Idleness is a well-known factor in producing all kinds of ailments, real and imaginary, of mind and body, perhaps because the idle man, from sheer lack of interest in life, devotes too much attention to his own organism."⁸

When a shy member of a group becomes preoccupied with a rip in his coat he is liable to think that everyone is aware of it, and to forget his own worth, the group's projects, and other constructive ideas.

Impractical preoccupation with a defect of body, mind, or character may be no less disruptive.

Attention is marked by *fluctuation*, which we shall take to mean continual variation in strength. Thus, a dot so faint that it hardly can be seen appears and disappears alternately. Likewise, a barely audible sound, such as a distant ticking watch, comes and goes. How fluctuation varies with special mental conditions remains, for the most part, to be investigated.⁹

Another characteristic of attention is *shift* in the sense of passage from one interpretation to another for the same object. Examples ap-

⁷ Abstracted from *ibid.*

⁸ Adapted from C. Lloyd Tuckey, *Treatment by Hypnotism and Suggestion*, 1907, 24-25 (Putnam).

⁹ Cf. Woodworth, *op. cit.*, 698-703.

pear in the figures of reversible perspective—the cube, the staircase, and the rest; the collections of dots or other items which seem to group themselves in successive ways; and the rotating wheel which is placed at such a distance that it seems to turn for a few seconds first in one direction, then in the other direction. Tests have revealed that the frequency of such shifts varies greatly with different individuals and is affected by the circumstances of stimulation, set, experience, and general condition.

McDougall reported that strychnine, morphine, tea, and coffee, respectively, make the shifts occur more frequently than usual, while ether, chloroform, and alcohol make them occur less frequently than usual.

J. McV. Hunt and Guilford found that some 20 dementia-praecox patients experienced the shifts at about the normal rate, but that an equal number of manic-depressive patients, whether manic or depressed, experienced them about a fourth as often.

According to D. Cameron, in depressed patients the frequency of shifts decreases according to the depth of depression. Cameron related this observation to the well-known dearth of ideas in these patients.

As McDougall suggested, such studies may prove useful in diagnosing temperaments, states of mind, and mental disorders.¹⁰

Two characteristics of attention remain to be mentioned. One, which seems closely related to fluctuation and shift, is attention's *motion*, its constant progress or change to different topics, elements, or aspects of its subject matter. Just what can be made of this characteristic in abnormal psychology is not clear. The other characteristic is the *motor accompaniments* of attention—focusing the eye, inclining the head, perhaps tensing the body, etc.¹¹ In many abnormal cases, the motor accompaniments of attention are exaggerated, and seem both symptomatic and causal of peculiar reactions.

Determinants of attention. Another classic topic significant for our field is the determinants of attention. The *objective* determinants, which include strong stimuli, repeated stimuli, form, change, and the like, are easily observed. The *subjective* determinants, individual peculiarities, habits, sets, and other central conditions, are peculiarly important here.

¹⁰ Woodworth, op. cit., 697; William McDougall, *Outline of Abnormal Psychology*, 1926, 444-445 (Scribner); J. McV. Hunt and J. P. Guilford, *J. Abn. Psychol.*, 1933, 27:443-452; PA 10 5024.

¹¹ Cf. Miller, op. cit., 110-162.

One patient in a mental hospital became so accustomed to his fellow patients that he noticed their peculiarities only when visitors came.¹²

Guthrie pointed out that the motor accompaniments of attention often prolong it for a given situation because they remove the individual from excitations by, and inhibit reactions to, other situations.¹³ This is especially true in many obsessed patients, patients who "hear voices" and even whisper the words to which they are attending.

Striking examples of other subjective determinants appear elsewhere in this book under such headings as repression, learning, meaning, abnormal illusions, and delusions.

Integrational Types of Attention

Considered from the point of view of integration, the countless cases of attention form a more or less continuous distribution. Nevertheless, it seems convenient to classify any case which is not too ambiguous under one of two main types, namely, unintegrated and integrated; and to recognize four kinds of unintegrated attention.

Unintegrated kinds. The first unintegrated kind is *simple* attention. This kind characterizes the unaroused, undisciplined, or regressive mentality. Simple attention is casual, random, subject to immediate circumstances, without much organization. It appears in the person who has not yet become fully awake to the tasks of his day, or who never has become awake to any tasks, or who is sitting idly after his day's work is done; it appears in any person who is attending merely to "whatever comes up."

In *repressive* attention, welcome conscious reaction predominates over unwelcome reaction through conflictful inhibition. Thus, one attends to one's work despite an urge to do something else; or one attends to thoughts of kindness despite an urge to be vengeful. One does so because, for the time being at least, the work is more welcome than the other activity, or the thoughts of kindness are more welcome than being vengeful; and other motives do not defeat the more welcome interest. Such attention is effortful; it costs energy. At the same time, this type of attention yields a sense of rightness. Often it develops into integrated attention.

Compulsive attention, too, is conflictful; but otherwise it is the reverse of repressive attention. In compulsive attention, through con-

¹² Henry Collins Brown, *A Mind Misaid*, 1937 (Dutton).

¹³ Edwin R. Guthrie, *Psychol. Rev.*, 1940, 47:147.

flictful inhibition, unwelcome conscious reaction predominates over welcome reaction. For example, though one consciously wants to work or to be kind, one fails to work, or one yields to the vengeful pattern. This type of attention can be very disruptive.

Dissociated attention cannot always be distinguished from the foregoing three kinds, especially from simple attention. The name points, however, to such attention as occurs despite considerable general or special dissociation of elements which, normally, should participate in the attentive process. Thus dissociated attention is markedly narrowed or even divided; it is abnormal. Certain forms of it, however, for example, in hypnagogia, are not pathological.

Integrated attention. In contrast to the several kinds of unintegrated attention, *integrated* attention characterizes the integrated person. Such a person's reactions are so coordinated, rich, unified, and stable that he attends with minimal expense for maximal results. This is, of course, an ideal state. One approximates it increasingly as one's life becomes integrated.

Abnormalities of Attention

Whatever makes for unintegrated mentality makes for abnormalities of attention. Though these abnormalities occur in great variety, we shall consider them briefly under inattention, distractibility, narrowed attention, abnormal preoccupation, and divided attention.

Inattention is a loose term for any failure to attend well to what someone thinks one ought to attend to. When that someone is misguided, and one is merely occupied with something more worth attention, there is no abnormality. Abnormal inattention results from conflict, fatigue, or pathological conditions.

A student at a women's college asked a psychologist how one could learn to concentrate. She said she spent all her working hours trying to master her subjects, in class, at the library, and at her desk; nevertheless, her mind kept wandering away from its proper tasks. She had not had this trouble before; her grades had always been good, and she had been interested in her work. She knew that her work ought to be interesting now, yet she could not make herself *attend* to it.

Since she seemed normally intelligent, healthy, and not given to trying to work more hours than are profitable, the psychologist steered the conversation as follows:

"Perhaps you are attending to something else."

"I am not absorbed in extracurricular activities," she replied. "I merely take a normal amount of recreation, and I don't think about it much at other times."

"Still, if you have any special interest or unsolved problem, even in the back of your mind, that may be the trouble."

Evidently this thought gave her pause; so the psychologist continued: "If your attention is being used up elsewhere, why not discuss that interest with some trusted friend, or perhaps with one of the college physicians?"

"I think I'd like to talk about it with you," she said. Then, after a moment: "The fact is, for several years I've been in love with a man whom my parents do not want me to marry—if I do marry him, they will have nothing more to do with me. Now I must decide soon between this man and my family. Can you help me decide?"

"I can act as a sounding board for your thoughts, if that will help you to decide."

The sounding board worked. Within a few days, the student concluded that her parents were right; and within a few more days, her attention returned to normal.

A student at a men's college complained to the same psychologist that he could not keep his mind on his work. He was also hearing strange sounds, he said; his food did not taste right; and he felt strangely that the other men in his dormitory distrusted him, talked about him, and wanted him to go away. The psychologist advised him to consult a psychiatrist. The psychiatrist found that he was psychotic and placed him in an institution for treatment.

Distractibility means inconstant, unduly susceptible, attention. It is characteristic of young children, very feeble-minded adults, manic patients, and all who are much disintegrated and not abnormally pre-occupied.

A typical manic patient began to tell about his life as a farmer. When the doctor rattled some keys, the patient spoke of locking the barn door after the horse was stolen, also of the keys of the kingdom; and when the clock struck three he called: "Three strikes and out!" and asked whether the doctor played baseball.

Children who have brain injuries are abnormally distractible from the main idea of a task to some mere detail or irrelevant item.¹⁴

It seems likely that mental patients who have been subjected to bi-

¹⁴ Cf. Heinz Werner and Alfred A. Strauss, *Psychol. Bull.*, 1941, 38:538.

lateral prefrontal lobotomy, though practically benefited, are made less capable of prolonged attention.¹⁵

Narrowed attention is limited to the little, the partial, or the concrete; it fails to take in relationships and significant wholes; it lacks normal perspective.

A schizophrenic (i.e., dementia-praecox) female patient was often inattentive or distractible. She was very attentive, however, in some simple tasks like copying a model, or dealing with a single object apart from its larger meanings.¹⁶

Abnormal preoccupation takes many forms, some of which have been suggested. We shall consider such preoccupation in various connections farther on.

Divided attention. This has been thought impossible by many persons who have tried to accomplish it. According to their findings, when attention is directed towards two or more interests, it either combines them in a single pattern or oscillates between them; in any event, it remains unitary.

We recognized unitariness as one of the characteristics of attention. We took unitariness, however, to apply to every field of attention, not to every person.¹⁷ In other words, as we saw in the chapter on The Subconscious, in certain cases there seems to be more than one field of attention. In such cases each field is unitary, yet the whole person's attention is divided.

Perception

Psychological definition of perception. As used technically in psychology, perception means sense perception, that is, *immediate interpretation of sensation*. Thus, one perceives certain yellowish sensations as an orange; certain scattered, changing, and more or less colorful sensations as men playing ball; certain visual or auditory sensations as a nonsense syllable; and other sensations as a statement of fact, a truism, or a line of poetry, according to the case.

¹⁵ Mary Frances Robinson, J. Abn. Psychol., 1946, 41:434.

¹⁶ Cf. Eugenia Hanfmann, Arch. Neurol. and Psychiat., 1939, 41:568-579; reprinted in Silvan S. Tomkins (ed.), *Contemporary Psychopathology*, 1943, 319-330 (Harvard Univ. Press).

¹⁷ Cf. 342, above.

Being immediate, the interpretation is not deliberate. Indeed, it is not conscious as a process, though the result ("That is an orange") is more or less conscious.

The object so perceived is called a percept.

Sensation, perception, and thought. How does perception relate to sensation? According to our definition, every perception implicates sensation. A sensation is supposed to be an elementary mental process aroused directly through afferent conduction. Perhaps even the newborn infant never experiences pure sensation, sensation not taken up into some perception. Nevertheless, the definition sets perception off from sensation considered at least as a lower limit for the many grades of perception. Sensation so conceived does not include interpretation. Perception does include more or less interpretation.

Perception is also closely related to thought. Thought is not limited to reasoning, but includes every ideational reaction. Some ideational reactions constitute the more or less conscious outcome of perception, for example, "an orange." Moreover, perception often arouses and is enclustered with further thought. Perception remains, however, immediate interpretation of sensation. Apart from the thought which enters into the conscious outcome of perception, thought is different from perception in either or both of two ways, namely: (1) much thought is deliberate, and (2) much is interpretative not merely of sensation but of other excitations, notably memories and new thoughts.

Genetically, perception grows out of sensation, and thought grows out of perception. Thus perception forms a continuum between sensation and such thought as is not involved directly in perception.

Grades of perception. This continuum includes all grades of perception, from the vaguest to the clearest, and from the simplest to the most complex.

Vague perceptions we may think of as involving comparatively little consciousness, either because the organism is lacking in high levels of the nervous system or because most or all of its high levels are otherwise occupied or are inhibited or dissociated.

Clear perceptions are highly conscious and involve the higher levels of the nervous system either consciously or subconsciously. Thus, any clear perceptions which integrate with the normal consciousness can be either conscious or normally subconscious; and any which do not so integrate can be coconscious.

Some vague perceptions are simple, and some are complex. Some clear perceptions, likewise, are simple, while others are complex.

Simple perceptions, it would seem, involve comparatively little of the nervous system, particularly of the higher levels. Complex perceptions involve more of the higher levels.

Perhaps the simplest kind of perception is mere awareness that one is having sensations. This is more than sensation, for one interprets the sensation as being such; but it is not much more than sensation. Moore pointed out this type, though he did not call it perception. He referred to patients who "can receive and give an account of the sensory qualities derived from an object and yet have no idea what the object can be." Such a patient may perceive that an object is smooth, or sweet, or green, or that it has other sensory qualities; but he cannot perceive what the object is.

A slightly higher kind of perception is awareness of only a simple pattern of sensory qualities, in other words, ability to "configure" the qualities, without ability to recognize the object. For example, a patient who looks at a picture of a cathedral "may pick out the windows, or point to the pinnacles and say they are steep like a roof, and remain unable to say what the picture represents."

Some patients "can see individuals in a picture and describe what they are doing and yet fall into the most glaring absurdities in the attempt to interpret the picture as a whole."

Other patients can interpret a single picture but cannot recognize it as one of a series, and cannot arrange the several pictures of such a series in a logical order.¹⁸

As compared with the simpler grades of perception, the more complex grades are more intelligently discriminatory or general; evidently because the more complex grades involve meanings which are more analytic or synthetic or both. Thus it is easy to arrange examples along the scale of complexity as follows: yellow, an orange, a special kind of orange, a citrus fruit; light and shade, a pattern of light and shade, a window in a picture, a picture of a cathedral, a particular cathedral, a fine example of architecture, a picture which belongs at such and such a point in a series of pictures of buildings; light and shade, a lot

¹⁸ Cf. Thomas V. Moore, *Psychol. Rev.*, 1938, 45:219-227, from which the quotations are adapted. Moore applied the term perception not to the mere "sensory synthetic basis" but to a higher "synthesis which unites present and past sensory experience in such a manner that [a fairly enlightened] interpretation is possible." This synthesis he ascribed to Aristotle's "synthetic sense, the *sensus communis*."

of print, a lot of words, a paragraph, a good paragraph, a typical paragraph by Thackeray.

The most complex grades of perception shade off into thought when they cease to be immediate interpretation of sensations. This definition gives only a rough division, not a sharp line, between perception and thought. A child may have to do much thinking *before* he perceives the print as a paragraph. A professor of English literature may at once perceive the print as a paragraph typical of Thackeray and may think on from there.

Two characteristics of perception. Like attention, perception is *a unitary process*; every percept which it yields is a whole, no matter how homogeneous or constant it may be. Thus, one perceives *an* orange, *a* ballgame between opposing teams, *a* nonsense syllable, even *a* chaotic scrapheap, or *a* splashing of waves against the rocks.

Any such perception may then break up and make way for one of its parts; for example, the perception of the splashing waves may yield to a perception of the splash on a particular rock. Likewise, two or more successive or associated perceptions may unite to become one which is more inclusive than either. True, different possible perceptions may compete with each other. Nevertheless, even the perception of competition between possibilities is somehow unitary.

Evidently it *takes ability* to perceive, especially to perceive in a complex way. In Koffka's language, more "energy" is required to "articulate" or "definitely organize" a field than to perceive it merely as an undifferentiated area.¹⁹ Rats with cerebral injury cannot learn as well as normal rats to discriminate between the significant and the insignificant elements in a problem situation.²⁰ Mentally retarded children with brain lesions pay more attention to visual backgrounds, and perceive less well the patterns which have those backgrounds, than do similar children without such lesions.²¹ Many a patient becomes less able to perceive as his psychosis gets worse and more able as he gets better. Everyone goes through a similar cycle as he goes to sleep and awakens.

Theory of perception. There are, of course, various theories of perception. The theory which seems most workable is that perception

¹⁹ *Gestalt Psychology*, 1935, 173 (Harcourt).

²⁰ Norman R. F. Maier, *J. Comp. Psychol.*, 1941, 32:181

²¹ Werner and Strauss, *Psychol. Bull.*, 1940, 37:440.

develops through experience as meanings are learned. Thus the sensations which are nuclear in perception become symbols that mean objects.

Whether complex perceptions begin as wholes which then develop parts, or as parts which combine into wholes, would seem to depend upon circumstances. Thus, the child's perception of a caterpillar as a simple unit, or perhaps "all skin and squash," may differentiate into the anatomist's perception of an intricate mechanism. Conversely, perceptions of small items like words, sentences, and stanzas, or musical notes, phrases, and themes, may combine into a meaningful whole.

Several studies suggest that the immediate mechanisms of perception are sensorimotor coordinations.²² We wonder, however, whether there are not perceptions which involve no more motor reaction than focussing the sense organ according to the stimulation.

Extraordinary Perception

"**Extrasensory perception.**" Widely publicized in recent years are Rhine's experiments upon "extrasensory" or "parapsychic perception," that is, perception not through "the recognized senses."²³ Strictly speaking, by our definition this would be not perception but clairvoyance, clairaudience, or some form of thought transference. Similar phenomena have been reported by some students of "psychical research." Despite the data claimed, however, most psychologists remain sceptical. Of course, no one can prove that such phenomena are impossible; but, in many cases, consistent psychological study has explained the supposed phenomena through chance, conscious or subconscious fraud, errors in observation and report, and normal though subtle perception and inference.²⁴

"**Hyperacute**" perception. More to our purpose is perception which seems extraordinarily acute.

An example is the so-called "facial vision or the sense of obstacles" which is said to occur in a small percentage of the blind. Hayes found experimentally that this sense rests largely if not wholly upon faint, even subliminal, sounds reflected by the obstacles. When he kept his

²² E.g., D. M. Purdy, *Psychol. Rev.*, 1935, 42:399ff., 528ff.

²³ Cf. J. Parapsychol.

²⁴ Cf. Edmund S. Conklin, *Principles of Abnormal Psychology, Revised*, 1935, 453-493 (Holt); Chester E. Kellogg, *J. Abn. Psychol.*, 1936, 31:190-193, *Sci. Monthly*, 1937, 331-341; Clarence Leuba, *J. Parapsychol.*, 1938, 2:217-221; etc.

subjects from hearing anything, they experienced no sensations in their faces, even when dangerous objects were approaching; and when the subjects misinterpreted certain sounds, they had illusions of obstacles. Hayes concluded that the sounds reflected from obstacles most likely arouse some fear and cause "involuntary contraction of tiny muscles under the skin." Thus the facial sense of obstacles is the interpretation of the resulting sensations in the skin.²⁵

Normal persons, too, are affected by subliminal auditory stimuli. For example, Coyne and others trained ten subjects to recognize three different sounds. The sounds were then made too faint for the subjects to hear them; these faint sounds were presented in random order; and each time, each subject was asked to guess which sound was given. The results for the group, also for eight of the ten subjects, were distinctly better than chance. Similar results have been obtained with subliminal visual stimuli.²⁶

Abnormal cases show acute perception in divers forms.

Many a hysterical subject seems "hyperesthetic" not because of especially keen sensations but because associated ideas make these sensations so important to the subject that he makes much of them or of the object which gives rise to them.²⁷

In multiple personality, colors presented to an eye in which the conscious personality is psychogenically color-blind may be perceived and reported by a coconscious personality.²⁸

In Prince's B.C.A. case, often when the conscious personality "C" was talking to someone, only the coconscious "B" perceived that "C" was being misunderstood.²⁹

A young woman reported to Erickson that within the past few weeks she had become acutely "worried, unhappy and depressed" for no known reason. She also had become lonesome, angry, and uncontrollably resentful over growing away from her most intimate girlhood friend, even though that friend visited at the subject's home every weekend. Through an automatic drawing and its eventual interpretation, the subject revealed that she had perceived subconsciously, but remained consciously unaware, that her father and her girl friend were

²⁵ Cf. Samuel P. Hayes, Perkins Publications, 1935, No. 12, 42, *Contributions to a Psychology of Blindness*, 1941 (American Foundation for the Blind); also the searching study by Philip Worchel and Karl M. Dallenbach, *Am. J. Psychol.*, 1947, 60:502-553.

²⁶ Cf. Jane W. Coyne, H. E. King, J. Zubin, and C. Landis, *J. Exper. Psychol.*, 1943, 33:508-513; King, Landis, and Zubin, *ibid.*, 1944, 34:60-69.

²⁷ Cf. Pierre Janet, *The Mental State of Hystericals*, 1901, 313 (Putnam).

²⁸ Cf. Morton Prince, *Boston Med. and Surg. J.*, 1890, 122:495.

²⁹ Prince, *Clinical and Experimental Studies*, 1929, 245, or 1939, 308 (Sci-Art).

having an affair while pretending to be loyal to the mother and daughter. (This subconscious perception proved to be correct.)

The same subject illustrated vague conscious perception when, some three weeks after she had made the drawing, but before she recognized consciously its meaning, she said: "I have a feeling that I am going to find out something dreadful . . . I have a feeling that I am getting ready to know something I already know but don't know I know it. I know that sounds silly, but it's the only way I can explain, and I am really afraid to know what it's all about. And it's connected with these matches." She gave Erickson a packet of matches which advertised a hotel at which she and her family had had dinner—and which, as it turned out, was the conspirators' meeting place. A couple of weeks later, still before she recognized the truth, she said of her drawing: "Really, it still looks like a mess of nothing. I just know it's the whole story, too, but why I say that I don't know. But I am sure that my subconsciousness knows a lot that it won't tell me. I have a feeling that it is just waiting for my conscious mind to prepare itself for a shock and it's just making me darned curious so I won't mind the shock." Within ten days more, when she seemed to have become ready through the therapist's support, the truth burst upon her. Then, after an emotional storm, she thought things over, sought out her "friend," thoroughly denounced and dismissed her, and made an excellent adjustment.³⁰

Many surprising "intuitions" shown by normal and by abnormal persons may be explained through vague or subconscious perceptions, especially when they reinforce one another, together with experience in interpreting such cues.³¹

Perception, though not acute perception, through reinforcement was noticeable in Hanfmann's traumatic subject. This subject mistook a knife for a spoon when merely looking at it, but recognized it correctly when he was allowed to handle it and feel its edge with his finger. Likewise, when he merely saw a lemon he called it "carrots"; but when he bit into it, he perceived that it was a lemon.³²

Imperception

Nature and Causes. Imperception means any abnormal inability to perceive. This inability may apply either to particular objects or to objects in general.

³⁰ Abstracted from Milton H. Erickson and Lawrence S. Kubie, *Psychoan. Quar.*, 1938, 7:443-466.

³¹ Cf., for example, Miller, *op. cit.*, 53.

³² Eugenia Hanfmann, Maria Rickers-Ovsiankina, and Kurt Goldstein, *Psychol. Monog.*, 1944, 57:No. 4, 6.

It is caused variously by brain injuries or by organic conditions which affect the brain; by psychoses, which also may involve organic conditions of the brain; and by psychoneuroses.

Types. Prominent among the types of imperception are the sensory aphasias; for example, word blindness (alexia), word deafness, and tactile-kinesthetic imperception (astereognosis).

An astereognostic patient has cutaneous and kinesthetic sensations but cannot interpret them. Thus, if a coin is put into his hand without his seeing it, he feels it but cannot make out what it is.

There are also general failures to comprehend language whether written or spoken.

G. M. Smith and Seitz have shown that normal subjects become less able to perceive speech as they are deprived of oxygen. Other investigators have wondered how far oxygen deprivation through physiological processes may be the immediate cause of imperception and other symptoms in mental disorders.³³

A more general type of imperception is agnosia, inability to recognize common objects. Agnosia occurs in various degrees.

Some subjects lose only the subtler meanings of objects. Others lose more. Some vacillate and even become disoriented to the object and the situation. For example: "See that chair? It looks like one. It feels like one. You can sit on it like one, but it don't look like a chair to me. I don't even know what it is. I don't even know if it's real . . . You see that table over there? It's the table for the ward but it ain't. It's the table for my mother's dining room. You can see the chairs around it and my father sitting in one of them, but it ain't there. There ain't nothing there and we ain't even talking about it."³⁴

Further types include, in part at least, disorientation and many illusions.

Disorientation

Disorientation is generally disordered perception. It involves not only much imperception but also, typically, much erroneous interpretation. Disorientation may be to time, to place, to material things, to people, or to any combination of objects.

³³ Cf. G. M. Smith, *J. Appl. Psychol.*, 1946, 30:255-264; also publications by Ross A. McFarland.

³⁴ Communicated by Milton H. Erickson.

Normal persons are often disoriented for time and place in dreams; for example, a city dweller who is summering in the country dreams that he is shivering in a snowstorm in the city. A patient disoriented for time may not know the present day, month, or year. A patient disoriented for place may think the hospital is a hotel in a city in another state. One disoriented for persons may take the members of his own family to be strangers, enemies, or angels.

Abnormal Illusions

Definition. Illusions are false perceptions, whether believed or not. Thus, when a straight stick is stuck part-way into clear water and looks bent, the naive person may think it is bent, while the experienced person knows that the stick remains straight; yet the bent appearance is an illusion for each observer.

Normal illusions occur in everyone. Abnormal illusions occur in the abnormal mental states both of normal minds and of abnormal minds, for example, in confusion, hypnagogia, dreams, hypnosis, and unusual preoccupations. Abnormal illusions occur also in many mental disorders. Abnormal illusions reflect imperfect integration. Often they are combined with hallucinations and delusions. (Hallucinations are perception-like images, vivid mental images. Delusions are seriously unintegrated false beliefs.) Not all abnormal illusions, however, are believed. A factory worker may see faces in a window pane, or hear voices in a lathe, and know that they mean only that he needs to rest.

Causes. The causes of abnormal illusions include external factors, such as the atmosphere which affects the apparent distance of a mountain; sensory factors, like afterimages which sometimes confuse vision; and, especially, central factors—integration, educability, and acquired patterns, including sets, all of which may be affected by abnormal conditions.

Of these factors, the external ones are more ancillary than principal—they help the other factors to create illusions. Thus, the lights and shadows on the window pane, and the sounds from the lathe, cause illusions not in the rested worker but in the one whose sensory processes, central processes, or both are abnormal enough to shape the external materials into illusions.

Even the sensory factors are largely ancillary. Köppe found auditory illusions in every patient who had ear disease and was insane; and he observed that the illusions waned when either the hearing or the mental

condition was improved.³⁵ Marked sensory disorders, however, tend to produce illusions. Thus, Schilder considered vestibular changes important in many psychotic illusions and their attendant delusions.³⁶

Chiefly responsible for many abnormal illusions are the central factors. The normal mind, as Pear said, "never photographs; it paints pictures. Those pictures, if interpreted with understanding, portray not only the external, impersonal objects which they profess to depict, but the personality of their owner, who is also their maker."³⁷ Spinoza remarked that Paul's judgment of Peter reveals less of Peter than of Paul.³⁸ The abnormal mind is more subjective than the normal mind; more subjective both through lack of sound interpretations and through addition of unsound interpretations.

Examples. Abnormal illusions range from comparatively simple to complex. A few examples follow.

Janet mentioned patients who, when touched on one side of the body, feel the touch as on the opposite side; also patients who feel it as on both sides of the body. The first of these abnormalities is called *allochiria* (etymologically, other hand). The second we shall call *synchiria* (together hands).³⁹

Some presenile patients have illusions of small animals or parasites on the skin.⁴⁰ Supposedly, these illusions derive from abnormal conditions in the skin or nervous system or both, perhaps complicated with psychogenic factors.

Probably for similar reasons, certain patients feel that their limbs or their whole bodies are made of some foreign substance like wood, stone, or butter. A woman with chronic peritonitis thought that she bore within her "the whole tribe of apostles, prophets, and martyrs. When her pains were more than usual, she railed at them for their greater activity."⁴¹

³⁵ Cited by Edmund Parish, *Hallucinations and Illusions*, 1898, 161 (Walter Scott).

³⁶ Cf. Paul Schilder, *Mind: Perception and Thought in Their Constructive Aspects*, 1942, 122 circa (Columbia Univ. Press); William W. Ireland, *The Blot Upon the Brain* (etc.), 1885, 258-268 (Bell and Bradfute, Edinburgh); Roy M. Dorcus and G. Wilson Shaffer, *Textbook of Abnormal Psychology*, 1950, index (Williams and Wilkins).

³⁷ Adapted from T. H. Pear, *Remembering and Forgetting*, 1922, 35 (Methuen).

³⁸ *On the Improvement of the Understanding*, passim; *Ethics*, passim, e.g., II, xvii. Cf. PA 1 923, 10 4384; various authors, *Am. Psychologist*, 1951, 6:316-318.

³⁹ Cf. Janet, *The Mental State of Hystericals*, and *The Major Symptoms of Hysteria*, Indexes; Victor Henri, *L'Année psychol.*, 1895, 2:361-362; Theodore Flournoy, *From India to the Planet Mars*, 1900, 64 (Harper).

⁴⁰ PA 13 3129.

⁴¹ Esquirol, as reported by Henry Maudsley, *The Pathology of Mind*, 1880, 212 (Appleton). Cf. also Maudsley's pp. 211, 216-217.

Some patients have illusions that their bodies are uncommonly light, or heavy, or small, or large, or in some other way different from the ordinary. "At times a young epileptic felt his body so extraordinarily heavy that he could scarcely support it. At other times he felt so light that he fancied he did not touch the ground. Sometimes it seemed to him that his body had become so great that it would be impossible to pass through a door."⁴²

An occasional patient feels that his body is divided.⁴³

A patient with abnormally keen sensations fears to touch a perfectly smooth surface and mistakes a knock on the door for a clap of thunder.⁴⁴

There are illusions of size of objects.⁴⁵ To one patient, an apple seems tiny; to another patient, the same apple seems huge. Objects also seem to shrink or to expand.

When Joe finished his hour of automatic writing,⁴⁶ he reported spontaneously that, during the time when he "must have been doing all that writing," Ehrenclou's face became "bigger and bigger, like a moon that swelled up until it almost filled the sky." Inasmuch as Joe's writing became more free and intelligent throughout the hour, it would appear that the coconscious, writing Joe was growing then at the expense of the conscious, talking Joe; and that, as the talking Joe shrank while still attending to Ehrenclou, Ehrenclou became relatively a larger part of this Joe's consciousness, and therewith relatively larger for this consciousness. Perhaps, indeed, Joe's visual field became split between a shrinking core or spot of vision used by the conscious Joe in talking to Ehrenclou and a widening peripheral ring of vision left for the Joe who was writing for Taylor. No measurements were made to settle this question. Such dissociation of the visual field is not unknown, however;⁴⁷ and contraction of the conscious field of vision around Ehrenclou's face might make the face seem to expand.

Some illusions have to do with time. We know that people judge time partly by objective events and partly by their own physical and mental conditions. Thus, other things equal, well-filled time passes quickly; comparatively empty time drags. A person who is asked to count to sixty at what he takes to be one count per second reaches

⁴² Griesinger, quoted by Th. Ribot, *The Diseases of Personality*, 1898, 31-32 (Open Ct.).

⁴³ Bonnier, cited by Schilder, *op. cit.*, 104.

⁴⁴ Cf. James Sully, *Illusions: A Psychological Study*, 1897, 66 (Appleton).

⁴⁵ Schilder, *loc. cit.*; PA 4 3436, 8 3634.

⁴⁶ Cf. 224-226, above.

⁴⁷ Cf. the writings of Pierre Janet, *passim*.

sixty in a shorter time when he has a fever than when his temperature is normal. Quinine, alcohol, and hashish, respectively, make intervals of time seem longer than they really are; thyroxin, caffeine, and cocaine make them seem shorter. Interests, including needs, affect one's perception of time. Quite possibly, a period of time is judged partly by ideas of what preceded it and of what will follow it. Such comparison, together with changed metabolic rate and other factors, may make a year seem longer for a child of six than for a man of sixty. In abnormal conditions, such factors distort time perception abnormally.⁴⁸

Certain patients, especially among the depressed ones, complain that time no longer moves. For others, time goes fast. Some experience the present as if it were long past. One of Schilder's subjects said that the immediate past became instantly the remote past. Some are confused about the present and the past. As a patient of Erickson's put it: "It is September, 1930, the calendar says so and the newspaper, and I know it's so, but it doesn't seem that way. It feels different. It feels like January, 1920, and everything looks that way too." Depressed patients often have distorted ideas of their own past time. For a few patients, time seems to go backwards. Some schizophrenic patients speak of a feeling of timelessness.⁴⁹

An occasional patient reports a strange illusion of movement: the feeling that one is moving in a direction opposite to that in which one really is moving.⁵⁰

Classifiable as illusions are the feelings of unreality, also *déjà vu*, and some other disorders of recognition which we touched upon previously.⁵¹ Here are some further examples:

A patient who had been suffering acutely from angina pectoris described these experiences: "I was alone, and already a prey to permanent visual trouble, when I was suddenly seized with a visual trouble infinitely more pronounced. Objects grew small and receded to infinite distances—men and things together. I was myself immeasurably far away. I looked about me with terror and astonishment; *the world was escaping from me* . . . I remarked at the same time that my voice was

⁴⁸ Cf. Harvey Carr, *J. Abn. Psychol.*, 1908, 2:260-271; Hudson Hoagland, *Sci. Monthly*, 1943, 56:57-58; PA 9 2116; Schilder, *op. cit.*, 221-222, 226; and an unpublished paper by Aase Gruda Skard.

⁴⁹ Schilder, *op. cit.*, 215-216; a communication from Milton H. Erickson; Irving J. Sands, "Foreword," in Nathan Israeli, *Abnormal Psychology and Time*, 1936 (Science Press); *ibid.*, 54, 76, 117, 5.

⁵⁰ Janet, cited by Schilder, *op. cit.*, 50; Alfred Gordon, *J. Abn. Psychol.*, 1920, 15:187.

⁵¹ Cf. 266-267, above.

extremely far away from me, that it sounded no longer as if mine. I struck the ground with my foot, and perceived its resistance; but this resistance seemed illusory—not that the soil was soft, but that the weight of my body was reduced to almost nothing. . . . I had the feeling of being without weight. . . .” In addition to being so distant, “objects appeared to me *flat*. When I spoke with anyone, I saw him like an image cut out of paper with no relief. . . . This sensation lasted intermittently for two years. . . . Constantly it seemed as if my legs did not belong to me. It was almost as bad with my arms. As for my head, it seemed no longer to exist. . . . I appeared to myself to act automatically, by an impulsion foreign to myself.”⁵²

A nervous young woman of 29 observed that whenever she went to a theater or to church along a certain road which was familiar to her she ceased to recognize the same road when she returned home. Even though she stopped on her way several times and tried to figure out the streets, the nonrecognition continued until she reached her house. This illusion occurred principally when she was under strong emotion or was physically fatigued. Eventually she made a complete recovery.

A man of 29, a psychasthenic, had strong doubts in identifying persons. Once he said to his employer, for whom he had been working for five years: “I am not totally convinced that you are the man who is the proprietor; I see only an image similar to yours.” His only son died. When he saw the body before the funeral he said: “Nothing proves that this is my son’s body; I see only an image similar to him.”⁵³

There are also occasional cases in which events seem to occur twice, and cases in which things seem to be double. A young woman who often had the latter experience complained of having what she called “the doubles.”⁵⁴

Illusions which result largely from special, acquired patterns, including sets, are often noticed in daily life.

Sully remarked that a set in the form of “subexpectation” can lead “a man who is strolling in a cathedral to take any kind of faint hollow sound for the soft tones of an organ.

“In the theater, we are prepared for realizing the semblance of life that is to be unfolded before us. More than this, as the play progresses, the realization of what has gone before produces a strong disposition to believe in the reality of what is to follow. In this way there is a cumu-

⁵² A patient of Krishaber’s, cited by William James, *Principles of Psychology*, 1890, 1:377-378.

⁵³ Adapted from Alfred Gordon, *J. Abn. Psychol.*, 1920, 15:187-189.

⁵⁴ Cf. 266-267, above; G. Störring, *Mental Pathology in Its Relation to Normal Psychology* (Loveday, tr.), 1907, 30-31 (Sonnenschein, London).

lative effect on the mind. If the action is good, the illusion, as every playgoer knows, is most complete towards the end."⁵⁵

Edridge-Green wrote that once, while "traveling by railroad to Battersea Park, I firmly believed that I had passed Chelsea and that the next station was Battersea Park. When the train reached Chelsea, I looked out of the carriage at the signboard and saw 'Battersea Park,' as I expected. I got out of the train but soon noticed that I had alighted at the wrong station. I felt perfectly convinced that I had seen 'Battersea Park' on the signboard, and went back to look, but found only 'Chelsea.' The words 'Battersea Park' are not like the word 'Chelsea'; yet I had looked directly at the signboard and had seen *plainly* 'Battersea Park.' Such is the probable origin of a good many ghosts."⁵⁶

According to Tuke, a woman who was walking from Penryn to Falmouth had been thinking a great deal about drinking fountains. She thought she saw in the road a newly-erected fountain, and even distinguished upon it the inscription,

"IF ANY MAN THIRST, LET HIM COME UNTO ME AND DRINK.

"Some time afterwards she mentioned the fact with pleasure to the daughters of a gentleman who was supposed to have erected it. They expressed their surprise at her statement and assured her that she must be mistaken. She went to the spot and found there only a few scattered stones."⁵⁷

Two friends of Abercrombie's who were traveling in the Highlands were given separate beds in one apartment. One of the men, "having awoke in the night, saw by the moonlight a skeleton hanging from the head of his friend's bed. He found it to be produced by the moonbeams falling upon the drapery which had been thrown back on account of the heat. Having awoke again some time after, the skeleton was still so distinctly before him that he could not sleep without again getting up to trace the origin of the phantom. Determined not to be disturbed a third time, he brought down the curtain into its usual state, and the skeleton appeared no more."⁵⁸

Tuke reported that "during the conflagration at the Crystal Palace, in the winter of 1866-67, when the animals were destroyed by fire, it was supposed that the chimpanzee had succeeded in escaping from his cage. Soon men saw the unhappy animal holding on to the roof, and writhing in agony to get astride one of the iron ribs. Its struggles were

⁵⁵ Adapted from Sully, *op. cit.*, 102-106.

⁵⁶ Adapted from F. W. Edridge-Green, *Memory and Its Cultivation*, 1897, 171 (Appleton).

⁵⁷ Adapted from Tuke, *op. cit.*, 57.

⁵⁸ Adapted from John Abercrombie, *Inquiries*, 1833, 265-266.

watched by those below with breathless suspense and, as the newspapers informed us, 'with sickening dread.' But there was no animal there; all this feeling was thrown away upon a tattered piece of blind, so torn as to resemble to the eye of expectant fancy the body, arms, and legs of an ape."⁵⁹

Hibbert mentioned "a whole ship's company being thrown into the utmost consternation by the apparition of a cook who had died a few days before. He was distinctly seen walking ahead of the ship, with a peculiar gait, by which he was distinguished when alive, from having one of his legs shorter than the other. On steering the ship towards the object, it was found to be a piece of floating wreck."⁶⁰

Wigan attended a soirée in Paris soon after the execution of Marshall Ney—an event which had strongly excited public feeling. When another visitor, Maréchal Aîné, arrived, the usher announced: "Maréchal Ney." Wigan said that "an electric shudder ran through the company"; and he himself, for a moment, saw a perfect resemblance to the late Marshall.⁶¹

Chappell and Pike thought that the "weather pains" which many rheumatics have on dark days may come from association between pain and unpleasantness, and between dark days and unpleasantness, so that the dark days redintegrate unpleasantness and therewith the pains.⁶²

Wolff noticed that one woman "failed to recognize her profile and took it for that of a seaman. Later, in the course of conversation, she remembered that she had always wanted to be a boy in order to be able to go to sea."⁶³

Many subtle illusions relate to emotions in others. Too few people realize how easily one can misinterpret another's emotion; for example, mistaking anxiety for annoyance, or annoyance at the weather for anger at oneself. Abnormal persons, of course, are especially liable to make such mistakes.

Illusions of interpretation of others' reactions are likely in anyone who is emotionally affected. Familiar enough is the angry person's belief that it was the other fellow who got angry first. The person who has fallen in love, especially when he does not admit to himself that he has fallen in love, is liable to read into his beloved an affection which is not there. An experiment by Murray indicates that, under

⁵⁹ Adapted from the quotation in Edridge-Green, op. cit., 172-173.

⁶⁰ Abercrombie, loc. cit.

⁶¹ Cited by Tuke, loc. cit. Cf., similarly, his pp. 57-58.

⁶² M. N. Chappell and F. H. Pike, *The Nature and Control of Psychological Illness*, 1935, 169-176 (mimeographed).

⁶³ Adapted from Werner Wolff, *Cha. and Personality*, 1933, 2:171.

some conditions at least, fear in a person inclines him to think that other persons are malicious.⁶⁴ This point may help to explain people's unduly adverse impressions of individuals, groups, and organizations in times of stress.

An experiment by Edwards suggests that many perceptions of political speakers' manners and points of view are warped by the observers' underlying political attitudes.⁶⁵

Many abnormal illusions derive from repressed patterns. Such illusions appear particularly in the "projection tests," tests which permit subjects to interpret pictures, stories, sounds, or other stimuli in terms of their own unacknowledged urges.

The Rorschach test uses symmetrical inkblots, some of them in colors. Murray's thematic apperception test shows pictures of people in various unclear situations—a human figure with the face buried in a cushion, and the like—and asks the subject to tell imaginatively what the picture means. Skinner's verbal summator test presents faint vowel sounds from a phonographic record; thus one subject interpreted "ah uh uh oo uh" as "stars overlooking." Through such methods, many subjects have revealed latent tendencies of which they were unconscious.⁶⁶

For any person, a fixed light in a dark room seems to move. Some abnormal subjects perceive the light as moving in unique ways which may reflect these subjects' states of mind.⁶⁷

Further References

Perception: Fritz Hartmann, *Die Orientierung*, 1902 (Vogel, Leipzig); Edmund Burke Delabarre, *Dighton Rock: A Study of the Written Rocks of New England*, 1928, 286-301 (Neale), or Colonial Soc. Mass., Publications, 1919, 20:418-434; PA 12 5793, 15 736; Werner Wolff, *What Is Psychology? A Basic Survey*, 1947, 87-86 (Grune).

⁶⁴ Cf. Henry A. Murray, *J. Soc. Psychol.*, 1933, 4:310-329.

⁶⁵ Cf. Allen L. Edwards, *J. Abn. Psychol.*, 1941, 36:49.

⁶⁶ Cf. Percival M. Symonds, *The Dynamics of Human Adjustment*, 1946, 516-518 (Appleton-Century); Henry A. Murray, *Explorations in Personality*, 1938, 530ff., etc. (Oxford Univ. Press).

⁶⁷ Cf. Albert C. Voth, *J. Exp. Psychol.*, 1941, 29:306-322; Marshall C. Sexton, *Am. J. Psychiat.*, 1945, 102:399-402; unpublished experiments by Judith K. Wasser (now Politzer), directed by I. W. Scherer.

15 | Thought

The psyche vegetates before she thinks, and when she thinks, far from suspending her vegetative functions, she is merely extending and refining them into a far-reaching sensibility to external influences and probable events.

George Santayana

Many thinkers have believed that thought is important in human living. Others have concluded that thought is not important; that it is nothing real, or that it is a mask for motives that *are* important.

What is thought? How does it work? And are there different types of thought which work differently?

Definition of Thought

Some writers limit the term *thought* to reasoning; some, to reasoning and other creative ideation; while many use the term more broadly. We shall take thought to mean *every variety of ideational reaction*, from the elementary to the creative.

Of course, thought is often combined with other reactions, for example, with walking, talking, feeling, and perceiving; yet thought itself is purely ideational.

This does not mean that thought can occur without mechanism.

Mechanism

Of the various theories, perhaps most significant are those which would explain thought essentially through mental constituents; through

afferent mechanisms; through reactions of effectors; and through processes, whether conscious or subconscious, in the higher connectors. The Gestalt explanations through functional relations of configurational structures and field forces are suggestive but to some of us seem unnecessarily abstract or metaphorical.

Thought and mental constituents. Many associationistic philosophers and psychologists have sought to reduce thought to images, or to images and determining tendencies, whether conscious or not. Other workers, notably in the Würzburg school, have emphasized the role of determining tendencies, sets, or attitudes in thought. Members of the Austrian school have called attention to mental acts, impalpable processes, as essential to thought. James, Prince, and others have pointed to many "feelings" or awarenesses, often marginal or on the fringe of consciousness, which occur along with various verbal and other images. Gestalt psychologists have urged the unity, form, or configuration of thought.¹ All images, determining tendencies, processes, feelings, and configurations are constituents of thought if one takes thought, as we do, to mean ideational reactions within which particular processes, elements, and outlines can be described as though through snapshots or slow motion pictures.

It would seem that all those constituents occur in thought, though variously in different persons, at different ages, and in different situations.² Even a perfect list of constituents, however, would describe rather than explain thought.

Thought and afferent mechanisms. Many theorists, from the early empiricists down, have supposed that thought derives essentially from actual sensations, like those which we noted in many illusions, together with images. Since images traditionally are considered vestiges of sensations, this approach would relate thought to afferent mechanisms at least.

Countless observers have found in their own thought such elements from afferent mechanisms. Still, we do not know that thought cannot

¹ Cf. Edwin G. Boring, *A History of Experimental Psychology*, 1950, passim (Appleton-Century-Crofts); William James, *Principles of Psychology*, 1890, 1:245-271 (Holt); Morton Prince, *The Unconscious*, 1914 or 1921, 338ff. (Macmillan); George W. Hartmann, *Gestalt Psychology*, 1935, 179-186 (Ronald); Robert S. Woodworth, *Experimental Psychology*, 1938, 783ff. (Holt).

² Cf. T. H. Pear, *Remembering and Forgetting*, 1922, 49ff. (Methuen); June E. Downey, *Creative Imagination: Studies in the Psychology of Literature*, 1929, 9ff. (Harcourt).

arise centrally, from cortical or other central associations, in persons who have had enough experience to think without direct sensory priming.

Thought and reactions of effectors. More appealing to a number of psychologists is the view that thought consists largely if not wholly in reactions of effectors. This view was developed notably by Washburn, by the behaviorists, and more recently by Arnold.

For Washburn, all the contents of consciousness depend on delayed motor response. This does not mean simply "delayed full motor response, externally visible, but delays in the systems of slight, tentative movements.

"When these systems run smoothly, we have 'unconscious thought'; when delays occur, we have 'sensations' and 'images.' Tentative movements involve far less fatigue than full movements and can be performed far more rapidly. Also, a creature capable of tentative movements can remain in a safe place and escape observation, while if the movements were fully performed it would risk discovery." Tentative movements depend upon a rich repertory of possible movements. "Most of the muscles of an animal are needed for locomotion. The animals have no such apparatus as our vocal organs, for example, capable of performing an almost infinite variety of movements without interfering with other necessary movements. Moreover, eye movements are but little developed in the great majority of animals.

"It would seem highly probable that the cortex is the organ for tentative movements." In this sense, "the cortex is the storehouse of past impressions." According to the hypothesis, however, "all association is association between movements." Movements, whether complete or tentative, "may be organized into systems of movements either simultaneously performed, as when we play the piano with both hands, or successively performed, as when we repeat a phrase. They may also be steady tonic muscular contractions, such as are involved in maintaining an attitude. Thinking involves the organization of tentative movements into systems."³

Arnold emphasized motor preparation or readiness as essential to any awareness.

In tactual sensation, she observed, if there is alertness or expectation, which is always accompanied by some muscular tension, even

³ Adapted from Margaret Floy Washburn, *Movement and Mental Imagery*, 1916, 53, 58-61 (Houghton Mifflin), and in Martin L. Reymert (ed.), *Feelings and Emotions: The Wittenberg Symposium*, 1928, 104 (Clark Univ. Press).

faint stimuli are perceived; but if such motor preparation is missing, as when a person is completely absorbed in something else, or is in a state of general relaxation, the stimulus must be quite intense to be perceived at all. Perhaps the same is true of auditory sensation, for the tympanic membrane may be relatively relaxed or not, according to the muscular tension.

She assumed that the essential motor readiness is centrally initiated and has to be learned, at any rate for sensations of low or medium intensity. Thus the newborn child reacts only to fairly strong pain stimuli but is probably oblivious to a host of stimuli that would arouse strong protest in an adult or even an older child. It is well known that sensory discrimination can be trained; and apparently it is the motor component which is trained—the sensory excitation remains the same.

Applying the hypothesis to thought, the difference between an actual sensation and one that is merely imagined is that in the actual sensation the motor component might be low, while in the imagined sensation it is very high. Thus the central participation is greater in the imagined than in the actual sensation. In this way it becomes possible to confuse slight stimulation accompanied by little motor readiness with no stimulation accompanied by great motor readiness—faint sensations can be confused with images.⁴

Various thinkers have supposed that thought inheres in silent rehearsal of language. In so far as the language is recalled visually or auditorily, this view would explain thought through afferent reactions. More commonly, however, it is assumed that thought inheres in implicit speech, writing, or manual linguistic gestures.

Undoubtedly, much thought is closely associated with language. Max Levin suggested that young children want to hear the same story over and over, even when they know the story, because they must hear it in order to think it.⁵ Many children and tired adults "think out loud." Many silent thinkers make slight movements of vocal or manual language, especially when they come to a difficult or intense idea. Language often helps thinking, apparently through providing props, ideas, and organization.

Nevertheless, the correlation between thought and language is not perfect. Some language occurs apart from relevant thought, as in children's use of long words and in various rituals. Moreover, language can impede thought. Often, indeed, language is inadequate to thought.

⁴ Abstracted from a letter, December 24, 1945.

⁵ Arch. Neurol. and Psychiat., 1933, 30:863.

Many a normal person cannot find words to say what he thinks. Some thoughts are too rich to be pulled out satisfactorily into the thread which is language. Some thoughts outrun or surpass language. Many an aphasic knows what he wants to communicate but cannot remember the right words to use. A number of persons, perhaps most often persons who have good visual or kinesthetic imagery, seem to solve complicated problems without much if any use of language. James reported a deaf-mute who speculated about the origin of the world and of life before he learned any language beyond a few elementary gestures.⁶

Laboratory experiments upon subjects who are thinking do reveal, in many subjects, action currents in the muscles of language. In normal persons, these currents are in the speech muscles. In the deaf who have learned the sign language, the currents are in the muscles that control the hands. Similar currents, however, occur in muscles which would be used in an imagined act; for example, in the right hand when the subject thinks of lifting a cigarette to his mouth with that hand, or in the eyes when he imagines visually some act or object. Apparently, too, these "practical" movements can occur without the linguistic ones.⁷

While these experiments show that muscular reactions occur often or naturally with thought, they do not prove that such reactions are essential to thought.

Thought and the higher connectors. Both the group who emphasize afferent mechanisms and those who emphasize reactions of effectors realize that the higher connectors are essential as coordinators, at least, of the afferent and efferent functions. Since afferent and effector functions, though often simultaneous with thought, have not been proved essential to thought, it seems well to rest upon the anatomical and experimental evidence that the essential mechanisms of thought are the higher connectors, that is, the cerebral cortex and perhaps some related neural structures.

According to some views, the higher connectors act as a whole, or as a field of forces like an electrically charged metal plate. According to others, there is neural localization—which does not mean dividing up

⁶ James, op. cit., 1:266-268. Cf. also William W. Ireland, *The Blot Upon the Brain*, 1885, 239ff. (Bell and Bradfute); Edna Heidbreder, *Psychol. Bull.*, 1936, 33:724-725; PA 10 2389.

⁷ Cf. Edmund Jacobson, *Am. J. Psychol.*, 1932, 44:677-694, summarized in Leland W. Crafts and others, *Recent Experiments in Psychology*, 1938, 373-377 (McGraw-Hill); Louis William Max, *J. Comp. Psychol.*, 1935, 19:469-486, 1937, 24:301-344, summarized in Crafts, 377-384; Rudolph Pintner, *Psychol. Rev.*, 1913, 30:129-153.

the cortex into separate little yards for as many mental "faculties" to live in. Our hypothesis, as explained previously, is one of complicated, ramifying neural localization.

Campion and Smith assumed that all thoughts "have their neural counterparts in patterns of neural impulse, not indeed such as can be dissected out and displayed anatomically, but inferred like the biological 'genes.'" Normally, these patterns involve the thalamus and the cortex together. In certain abnormal cases, the cortical part of the circuit is broken and the neural impulse flows instead from the thalamus to the autonomic system. For such cases, the cure depends upon diverting the course of impulse from the autonomic system back through the cortex, to restore the normal "thalamico-cortical circulation."⁸

Rosett believed that the central mechanisms which support thought become active when the antecedent, afferent pathways become inactive. Thus sensation and perception more or less preclude thought at the time, but when we cease to sense and perceive much, notably upon falling asleep, imagery and hallucinations flower forth.⁹

In our view, as suggested in the chapter on Reactions, thought occurs when the balance between general excitation and adjustmental readiness, and the thresholds of the organism, favor thought as compared with the various functions which tend to inhibit it.

Just how thought is related to the higher connectors remains, of course, a mystery. Apparently it will always be a mystery, no matter how refined our psychological and neurological observations become. The available observations point to some correlation between thought and the processes of those connectors.

Conscious and subconscious thought. In concluding this discussion of the mechanism of thought, we should note that the higher connectors seem to mediate not only conscious thought but also much subconscious thought. Since considerable evidence and a possible neurological basis for such thought appeared in earlier chapters,¹⁰ here are only a few examples.

Charles M. Child, upon questioning 200 subjects, found that 31 per cent of them had carried through a logical solution of some prob-

⁸ Adapted from George G. Campion and Grafton Elliott Smith, *The Neural Basis of Thought*, 1935, 12, 21, 130, 131 (Harcourt).

⁹ Joshua Rosett, *The Mechanism of Thought, etc.*, 1939, 270-271 (Columbia Univ. Press).

¹⁰ Cf. 183-184, 332-338, above.

lem during sleep and had remembered the steps and the conclusion upon waking. About half of these subjects considered the results equal to or better than the results gained for similar problems in waking thought.

One subject cited this experience: "Being greatly troubled over a problem in algebra just before going to sleep, and leaving the problem half finished, I dreamed the rest of the solution and obtained the correct result. On awaking, I remembered it, and it was correct."

Another subject had been trying to make a trial balance, but had been unable to explain a difference of 2 pounds, 10 shillings, 0 pence between the *Dr.* and the *Cr.* sides of the record. Finally he gave it up, feeling nervous and angry with himself, and went to bed. That night, he dreamed that he was seated before his ledger, checking over the accounts. Soon he came upon a small account of 2 pounds, 10 shillings, 0 pence, which he had failed to enter on the proper side of the trial-balance sheet. He berated himself for his stupidity, then entered that account, closed the ledger, and went home. Here the dream stopped. The next day, when he was going to church with a young lady, suddenly the dream flashed upon him. He went to the office, opened the ledger, and turned to the folio which his dream had indicated. There he found the missing account. He entered it, and quickly balanced the record.

Almost a quarter of the 200 subjects had had an invention, a literary creation, a mathematical solution, or the like, flash upon them as a clear idea. One subject had experienced many solutions of mathematical or psychological problems when occupied quite otherwise.¹¹

In one of Prince's cases, a subconscious personality described how this personality helped to solve problems which had proved difficult for the conscious one. Whenever there was a problem, the conscious personality worked at it for a time, and, if she failed to solve it, she "put it out of her mind." According to the subconscious personality, this amounted to putting the problem *into* the subconscious mind, where it remained as an unsolved problem. Then, from time to time, there arose in this consciousness divers memories and thoughts, anything which the *subconscious* personality had experienced, read, or thought, which might bear upon the problem. In this subject, however, these subconscious memories and thoughts were not logically connected, and the subconscious mind itself did not solve the problem.

¹¹ Cf. Charles M. Child, *Am. J. Psychol.*, 1892, 5:corrected pages 254-256; also James, *op. cit.*, 1:164n; L. Dugas, *Rev. philosophique*, 1897, 43:410-421; PA 2 139, 3 697, 13 5601, 14 853, 1356; William Ellery Leonard, *The Locomotive-God*, 1927, 335-339, 416 (Century); Anita M. Mühl, *Automatic Writing*, 1930, 98-100 (Steinkopf, Dresden); Eliot Dole Hutchinson, *Psychiatry*, 1939, 2:323-332; Diarmuid Russell, *Harper's*, 1942, 185: 428-431.

Later, when the conscious personality recalled the problem, the relevant subconscious materials came into consciousness with it. Without realizing that these same materials had already come up in the subconscious mind, the conscious mind took them and solved the problem.¹²

In the B.C.A. case of multiple personality, personality A was amnesic for personality B. B, when not the dominant personality, was coconscious. B was amnesic for b, who was B hypnotized. More precisely, b seems to have included B without being remembered by her and so could be coconscious along with B.

Prince arranged with b that, when A was dominant, he would ask A to write some verse on a piece of paper. On the margin of the paper he would have certain numbers to represent two different moments in the day. Those numbers would be meaningless to A, for they would seem to be there by chance, and A would be occupied with the poem. Personality b, however, was to perceive the numbers and calculate the time between them in seconds. Then, upon being made dominant in place of A, b was to give the answer immediately, without conscious calculation.

The experiment worked out as planned. A was alert and good natured as she wrote the poem. When questioned afterwards, she reported that she had not noticed any other writing on the paper. (Even if she had, she could hardly have been expected to understand it, for the numbers were written not with colons but with periods, 3.15 and 4.33.) When B was questioned, she said she had seen the numbers; but she thought they meant dollars and cents, and she did not remember that there had been any calculation. b, on the other hand, remembered the whole experiment, and even described how she made the calculation.¹³

Many a "change of heart," and many a conversion to or from orthodox Christianity, fascism, communism, or other doctrine, derives largely from subconscious processes. These processes include what James called "subconscious incubation and maturing of motives deposited by the experiences of life. When ripe, the results hatch out or burst into flower." Prince explained that the constituent experiences become organized, in the subconscious, with one another and with all compatible experiences. Together they are like "a subconscious torch, ready to be set ablaze by a spark. The spark is some new internal or external experience occurring often in a moment of distraction (dissociation). More literally, a conflict arises between the submerged pattern and the

¹² Cf. Morton Prince, *Clinical and Experimental Studies*, 1929, 299, or 1939, 366 (Sci-Art).

¹³ Cf. Prince, op. cit., 1929, 257-263, or 1939, 321-327. Cf. also his pp. 169, 294, and 533, or 226, 361, and 617; and his *The Unconscious*, 1914 or 1921, 169-180, 204-213.

personal consciousness; the former becomes the victor and the individual is overcome by the sudden emergence of the subconscious pattern. The conversion seems to him miraculous in his ignorance of the subconscious processes that have been at work."¹⁴

Prince showed that a coconscious personality developed in the same way.¹⁴

Types of Thought

Discussions of thought are often confused through failure to distinguish between different types of thought. Daydreaming, for example, is one type. Explication of one's motives, explaining why one reacts as one does, is another. Neither of these should be taken to represent all thought. True, the several types shade into one another, and different types often alternate or combine so that it is hard to distinguish them. Nevertheless, we need to distinguish several outstanding types.

Imagery

Imagery is a name for the "mental pictures," "echoes," and other revivals and combinations of sensory elements in thought.

Kinds of imagery. The several kinds of imagery, visual, auditory, and the rest, are interesting relative to hallucinations, to which we shall return. Otherwise, of the several kinds as related to our field we know little or nothing.¹⁵

Imagery and perception. Normally, one distinguishes between one's images and one's percepts by the percepts' greater vividness, stability, and sensations of focusing and responding. Given the right context, however, anyone can confuse a strong image with a weak percept.¹⁶ This suggests that the abnormal person often confuses images with percepts because he has relatively strong imagery, or weak perception, or both.¹⁷

Differences in imagery. The differences in imagery that have been reported for different individuals and different ages may be important

¹⁴ Adapted from William James, *The Varieties of Religious Experience*, 1902, 238 (Longmans); Prince, *Clinical and Experimental Studies*, 1929, 168-170, or 1939, 225-227. Cf. also Raoul Allier, *La Psychologie de la conversion chez les peuples non-civilisés*, 1925 (Payot, Paris); PA 20 862.

¹⁵ For some suggestions, cf. H. L. Hollingworth, *The Psychology of Thought Approached Through Studies of Sleeping and Dreaming*, 1926, 46-54 (Appleton).

¹⁶ Cf. Cheves West Perky, *Am. J. Psychol.*, 1910, 21:422-452.

¹⁷ For question of this view, cf. PA 2 115, 20 426.

for us, but no one seems to have shown how. Even the synesthesias, and the vivid, perseverative or revivable imagery that is called eidetic, have not been followed out into abnormal psychology.

Purdy reported one *Eidetiker*, a college girl, who could "place green leaves upon barren winter trees, or supply a smooth-shaven man with a full beard." Often she could "remove" actual objects; for instance, she could see a present person without his head. Her imagined sounds were as real to her as her imagined visual objects and sometimes completely blotted out the voices or other sounds in her environment. Often her eidetic imagery appeared when she was not expecting it. "Once when she was in a lecture hall filled with students, she suddenly, and for no apparent reason, acquired the impression that all the students were wearing black goggles." Occasionally she mistook her eidetic images for reality; for example, when riding in a car, she warned the driver against several obstacles which turned out to be nothing more than her own eidetic images.¹⁸

Hallucination

Hallucination is perception-like imagery: imagery that "feels" like perception, whether believed or not.

Kinds of hallucinations. Hallucinations are auditory, visual, thermal, or apparently of any sense or combination of senses, including pain and fatigue. Auditory and visual hallucinations, however, are the kinds most frequently reported.

Hallucination and imagery. Hallucination is continuous with imagery, in that, as imagery becomes more intense, it passes insensibly into hallucination.^{16,17}

Hallucination and illusion. Hallucination is continuous also with illusion. Illusion, being false perception, has a sensory core; and when that core is very slight or occurs only within the sentient organism, one cannot tell whether the outcome is an illusion or a hallucination. Perhaps there is no hallucination without some, at least intra-individual, sensory core. Practically, however, the term hallucination is useful for uncommonly vivid imagery, especially if fairly well-rounded or elaborate, without an obvious sensory core.

A hallucination, like any other type of thought, may occur along

¹⁸ Cf. D. M. Purdy, *J. Gen. Psychol.*, 1936, 15:444-445. Cf. also H. Taine, *On Intelligence* (Haye, tr.), 1871, 45-48 (Holt and Williams); Daniel Hack Tuke, *Illustrations*, 1873, 54.

with an illusion. Still, hallucination remains theoretically distinguishable from illusion.

Often an obvious sensory core supports an experience so vivid and different from the core that it is called hallucination. As Tuttle observed, "Patients say that the clock ticks words; that birds, flies, mosquitoes, and bees talk to them; and that the scratching of a pen, rustling of clothing, passing of trains, whistle of a locomotive, footsteps on the floor, running water, etc., are audible words." Other patients hear voices in their own heads, perhaps because of intra-aural excitations; or in their abdomens, because of sounds in the intestines. Still others localize the voices in the fireplace, or in some particular direction. Many patients think the voices come by telephone, radio, or telepathy.

Liepmann pressed upon the eyes of an acute alcoholic and asked him what he saw. The man replied: "A white ball"; then, "a man on top of a horse," etc. When the experiment was repeated another day, the man said: "It is full of flies and peacocks and hens and horses, and there is a butcher's wagon going up the road and a stage house at the top of the hill."¹⁹

Characteristics of hallucinations. Typically, a hallucination is, like a perception, unitary, organized within itself. In other words, the subject hallucinates a something—a noise, a fog, a phrase, a design, a person, a scene, a cloud of insects, a warfare of beasts; the hallucination may be fantastic, but it is not chaos. Still, many a hallucination has conflict within it, and hallucinations often compete and conflict with one another.

Hallucinations may be agreeable, disagreeable, or indifferent to the person who has them. The same hallucination may affect him differently at different times, according to his mood. Among the insane, hallucinations range from the torturous to the ecstatic.

As Ribot pointed out, most hallucinations seem to come from both ears, both eyes, or both sides of the body; but occasionally they involve only the right or the left side. More rarely, they involve both sides of the body but in opposite ways; for example, "whilst one ear is assailed by threats, injuries, evil counsels, the other is comforted by kind and soothing words; one eye perceives only sad and repugnant objects, the other sees gardens full of flowers."²⁰

¹⁹ Adapted from George T. Tuttle, *Am. J. Insan.*, 1902, 58:451-454.

²⁰ Th. Ribot, *The Diseases of Personality*, 1898, 100-101 (Open Ct.). Cf. also Taylor, *Readings*, 558-559; Edmund Parish, *Hallucinations and Illusions*, 1898 (Scribner); John

We have seen already how some visual hallucinations are gigantic, as they reflect scenes from early childhood.²¹

Some hallucinations are evidently regressive: the subject hallucinates experiences of his childhood. Many hallucinations, however, come from recent experiences; and some represent forward-looking thought, even subconscious reasoning.

Visual hallucinations are often followed by negative afterimages, even in naïve subjects.²²

There are what are called negative hallucinations. An example was the eidetic young woman's achievement in blocking out the head of a present person.²³ More extreme examples are psychogenic failures to see people who are present, or to hear them, or to perceive any of the immediate surroundings.

Negative hallucinations are like psychogenic anesthetics except that the hallucinations seem to derive less from sensory dissociation than from ideational dissociation or from abnormal preoccupation. In other words, a negative hallucination may result from dissociation of relevant ideas or meanings, or from abnormal preoccupation with any reaction that excludes the present object.

It should be noted that hallucinations may or may not be believed. Thus hallucinations are not synonymous with delusions. Delusions are seriously unintegrated false beliefs. Hallucinations are merely perception-like imagery. In many cases, hallucinations are believed; and in many, the hallucinations support and are supported by delusional systems. Often, however, a person who has considerable insight asks to be treated for hallucinations which he knows cannot be true. Often a person with somewhat less insight merely doubts his own hallucinations.

"Is this a dagger which I see before me,
The handle toward my hand? Come, let me clutch thee.

Honeyman, *Proc. Soc. Psychical Res. (E.)*, 1904, 18:308-322; David Forsyth, *Brit. J. Psychol.*, 1921, 11:263-276; PA 8 3376, 9 2825, 10 1474, 23 4332; Paul F. Schilder, *Mind*, 1942, 7-10 and index (Columbia Univ. Press); Carney Landis and M. Marjorie Bolles, *Textbook of Abnormal Psychology*, 1950, 407-412 (Macmillan).

²¹ Cf. 196, above.

²² Cf. F. W. H. Myers, *Proc. Soc. Psychical Res. (E.)*, 1894, 10:144-148, and the references there; Milton H. Erickson and Elizabeth Moore Erickson, *J. Exp. Psychol.*, 1938, 22:581-588, 1941, 29:164-170.

²³ Cf. 373, above. Cf. Pierre Janet, *Rev. philosophique*, 1887, 23:449-472. For coconsciously motivated examples, cf. Morton Prince, *The Dissociation of a Personality*, 1908, 538-540 (Longmans), *Clinical and Experimental Studies*, 1929, 252, or 1939, 315; PA 3 1913.

I have thee not, and yet I see thee still.
 Art thou not, fatal vision, sensible
 To feeling as to sight? or art thou but
 A dagger of the mind, a false creation,
 Proceeding from the heat-oppressed brain?"

Visions are mainly visual hallucinations which are more or less elaborate and, to the naïve, significant of the world, natural or supernatural. To the psychologist, visions are significant of the subject's own patterns and reactions, conscious and subconscious.

According to Parish, visions are common in ecstasy, "where they arise out of intense concentration on single groups of ideas, conjoined with lower sensibility and persistent euphoria. Emanuel Swedenborg was privileged to behold God himself. Engelbrecht was carried by the Holy Spirit through space to the gates of hell and then borne in a golden chariot up into heaven, where he saw choirs of saints and angels singing round the throne, and received a message from God, delivered to him by an angel. The many familiar examples of ecstatic visions in the Old and New Testaments may be cited. Even in our own time—besides the cases to be found in asylums—an 'ecstatic maid' sometimes makes her appearance here and there, exercising a powerful effect.

"Among Eastern and primitive peoples, the ecstatic state is frequently observed, sometimes arising spontaneously, but more often artificially induced. The means most often employed are beating of magic drums and blowing on trumpets, howlings and hour-long prayers, dancing, flagellation, convulsive movements and contortions, and asceticism. Recourse is also had to narcotics to bring about the desired result." ²⁴

Some causes and examples of hallucinations. Like illusions, hallucinations, including visions, derive from external factors, sensory factors, and central factors. Hallucinations, however, derive more largely from central factors.

"A notable proportion of sane persons," Galton observed, "have had actual hallucinations of sight, sound, or other sense, at one or more periods in their lives. I have a considerable packet of instances contributed by my personal friends, besides a large number communicated to me by other correspondents. One lady, the daughter of an eminent musician, often imagines she hears her father playing. The day she

²⁴ Adapted from Parish, *op. cit.*, 39-40. For examples, cf. *loc. cit.*

told me of it the incident had again occurred. She was sitting in her room with her maid, and she asked the maid to open the door that she might hear the music better. The moment the maid got up the hallucination disappeared. Another lady, apparently in vigorous health, and belonging to a vigorous family, told me that during some past months she had been plagued by voices. The words were at first simple nonsense; then the word 'pray' was frequently repeated; this was followed by some more or less coherent sentences of little import, and finally the voices left her. In short, the familiar hallucinations of the insane are to be met with, far more frequently than is commonly supposed, among people moving in society and in good working health."²⁵

Abnormal physical conditions account partly for what is called the phantom limb. This hallucination occurs when a person who has lost a limb feels it as present.

To quote Landis and Bolles, "One individual said it felt as though his fingers were clenched over his thumb, his wrist was flexed, and the fist pressed toward the shoulder and held there; another said that it felt as though a wire which ran down the center of the missing arm was attached to the fingers and was pulling the fingers up through the arm."²⁶

Perhaps the limb is felt because scar tissue at the stump excites the afferent nerves. Feldman suggested also that lack of the limb disturbs the body balance enough to arouse compensatory movements of the muscles about the stump, so causing kinesthesia like that from the limb that was lost. (Were such sensory factors not so hidden, we should call the phantom limb not a hallucination but an illusion.) Another factor mentioned by Feldman is the tendency to recall any object that is missing from its usual surroundings.²⁷

As time goes on, and the subject learns to adjust to his lack, the phantom limb shrinks, and finally may fade into the stump. Conversely, when the use of a limb is lost gradually, as through freezing or tuberculosis, no "phantom" limb occurs.²⁸

Various neurological conditions favor hallucinations, or what are taken to be hallucinations.

²⁵ Adapted from Francis Galton, *Inquiries into Human Faculty and its Development*, 1883, 167-168 (Macmillan). Cf. also Rosett, *op. cit.*, 254-255.

²⁶ *Op. cit.*, 403.

²⁷ Cf. S. Feldman, *Am. J. Psychol.*, 1940, 53:590-592.

²⁸ David Katz, also Alfred Gallinek, cited by Feldman, *loc. cit.*

Tatham Thompson recorded the case of a woman "who came to him because she saw the head and horns of a goat constantly before her. On measuring her field of vision with a perimeter he found a blind spot corresponding to the figure she had described. This was due to the bursting of a blood vessel in the eye with consequent injury to the retina."²⁹

Brunton was "inclined to believe that the fairies which many people have declared that they saw were nothing more than the colored zig-zags of migraine modified by imagination."³⁰

A man had such a hypersensitive retina that any bright light was a torture; and whenever he had a cold or a fever, he wore black bandages over his eyes and stayed in darkened rooms. At such times he saw many "pictures" which he ascribed partly to retinal inflammation and partly to imagination; but he could not control the pictures. "For instance," he wrote, "something begins to move along before me and it develops into a full-blown iron foundry. Everything in it takes on the glow that flashes out in a real foundry when the furnace doors are opened; only the color is uniformly distributed over everything. The tools, the walls, the iron rods, the cinders are of molten-iron color. A heap of cinders is simply a heap of gems, an iron rod is burnished gold. But the foundry and all its appurtenances move along and disappear. I cannot stop it. I cannot call it back.

"I have many sights savoring less of inflammation than that of the foundry. I am entertained with landscapes of all sorts; and here again I am helpless.

"Between what I see and what a victim of delirium tremens sees is only a matter of degree."³¹

S. A. Kinnier Wilson showed that injuries to the auditory area of the brain often bring on auditory hallucinations; injuries to the visual area, visual hallucinations; and so on for the other sensory areas.³²

Visual hallucinations were induced in a healthy young doctor for the first time, so far as he could remember, when he was kept awake to test the effect of going without sleep. After the 48th hour, he saw a layer of dark particles about a foot above the floor. Later these particles developed into gnat-like bodies, colored red, purple, or black, and filled the air. Often he tried to touch them or brush them away. Two other subjects in the same experiment seemed to have no hallucinations other than intercurrent dreams.³³

²⁹ Adapted from Lauder Brunton's account, *J. Ment. Sci.*, 1902, 48:246.

³⁰ Adapted from loc. cit., 252.

³¹ Adapted from Charles Caverno, *Psychol. Rev.*, 1904, 11:338-342.

³² *Modern Problems in Neurology*, 1928 (E. Arnold).

³³ G. T. W. Patrick and J. Allen Gilbert, *Psychol. Rev.*, 1896, 3:470-480.

Some hallucinations come from intense impressions or thoughts.

Isaac Newton wrote to Locke that he once looked at the sun in a mirror, then looked into a dark corner of the room until the after-image vanished, and repeated this sequence three times. The third time, when the aftereffects were almost gone, he was amazed to find that they came back upon "intending his fancy upon them. After this," he said, "as often as I went into the dark and intended my mind upon the sun, I could make the phantasm return, and the oftener I made it return, the more easily I could make it return again." This came "to such a pass" that "if I thought upon him, I presently saw his picture, though I was in the dark." Consequently, he shut himself up in a dark room and thought about other things for three days, until his eyes began to function normally. According to his letter, he was in good health throughout the period of the experiment.³⁴

St. Theresa wanted to experience the personal presence of Christ. At intervals during many months, she cleared her mind of other thoughts and concentrated upon her mental picture of him. One day, though she could not really see him, she felt his presence. That presence came to her again and again during the days that followed. After a few more days, to her great joy, she saw Christ's hands. A few days later she was rewarded with his entire, visible presence.³⁵

Charles Dickens told G. H. Lewes that, when he was writing his novels, he distinctly *heard* every word that his characters said.³⁶

According to Galton, "A distinguished authoress, who was at the time a little fidgeted, but in no way overwrought or ill, once saw the principal character of one of her novels glide through the door straight up to her. It was about the size of a large doll, and it disappeared as suddenly as it came."³⁷

A painter, Martin, used to study a sitter until he could project his image in space; whereupon he dismissed the sitter and copied the image. The image seemed so real that if anyone got in front of it he asked him to move.³⁸

Flaubert took his characters even more seriously. "When I was describing the poisoning of Emma Bovary," he said, "I had so strong

³⁴ Adapted from the quotation in Tuke, *op. cit.*, 1873, 53. For like examples cf. Taine, *op. cit.*, 53-54.

³⁵ Cf. James H. Leuba, *Rev. philosophique*, 1902, 54:448-449. For examples from other cultures, cf. Lewis Bayles Paton, *Spiritism and the Cult of the Dead in Antiquity*, 1921 (Macmillan).

³⁶ Cited by Tuke, *op. cit.*, 65.

³⁷ Galton, *loc. cit.*

³⁸ Charcot's observation, cited by Edmund Gurney, Frederic W. H. Myers, and Frank Podmore, *Phantasms of the Living*, 1886, 1:479, where like cases are mentioned (Trübner).

a taste of arsenic in my mouth, I was myself so far poisoned, that I had two consecutive fits of indigestion, and real indigestion, for I threw up my dinner."³⁹

A patient in a mental hospital said that if he thought of anything which the doctor might say to him, he heard the doctor say it. This patient believed his hallucinations, and concluded that the doctor knew his thoughts.⁴⁰

That simple learning can shape hallucinations appears not only in case histories but also in some experiments.

Ellson, by presenting a tone together with a light 60 times, was able to obtain hallucinations of the tone in 32 of 40 subjects when the light was presented alone.⁴¹

Charles W. Page, in 1892, pointed out that "auditory hallucinations are exceedingly liable to voice ideas and suggestions which the subject of them has endeavored to rule out of his mind and life, or which he has contemplated only with fear and trembling, thus linking them the more closely to his personality and rendering them the most aggressive thoughts in his mind."⁴² Apparently the same is true of various other hallucinations.

Bennett noted that a certain butcher, "on trying to hook up a heavy piece of meat above his head, slipped, and the sharp hook penetrated his arm, so that he himself was suspended. On being examined, he was pale, almost pulseless, and expressed himself as suffering acute agony. The arm could not be moved without causing excessive pain; and in cutting off the sleeve, he frequently cried out; yet when the arm was exposed, it was found to be quite uninjured, the hook having only traversed the sleeve of his coat."⁴³

A friend of Prince's was knocked down suddenly by a four-horse coach. The man was first aware of nervous shock and of lying on the street and looking up at the white belly of a horse. Years afterward, when he seemed to be in perfect health, he said that whenever he was startled by a noise he saw before him "as a vivid mental picture the white belly of a horse."⁴⁴

³⁹ Taine, *op. cit.*, 45.

⁴⁰ Tuttle, *loc. cit.*

⁴¹ Douglas G. Ellson, *J. Exp. Psychol.*, 1941, 28:1-20.

⁴² Am. J. Insan., 1892, 49:373ff.; cited by Henry Alden Bunker, *Psychoan. Quar.*, 1945, 14:473.

⁴³ Cited by William B. Carpenter, *Principles of Mental Physiology*, 1888, 158 (Appendon).

⁴⁴ *Clinical and Experimental Studies*, 1929, 72.

A carpenter was subject to visions of his dead child, "against his wish and will," whenever he concentrated his attention upon any point.⁴⁵

A gendarme had to assist at an execution. For a long time afterward the scene was constantly before him. It haunted him so that he came to "hear," "see," and believe that his fellow soldiers were going to execute him likewise.⁴⁶

In many instances, the apparition of a murdered person has haunted the murderer until he gave himself up to the police.⁴⁷

Hallucinations in hypnagogia are well known.⁴⁸ The images in dreams are, in effect, hallucinations. Sometimes these persist after waking. Hallucinations occur readily also in hypnotic, posthypnotic, and other more or less dissociated states.

A college girl, 22 years old and in good health, was a keen student of nature, especially of wild flowers. According to her own account, she was an excellent visualizer. Her hypnagogic state usually lasted for a half hour to an hour. In that state her images were largely of mosaics of blue, red and brown in oriental patterns, but often there were other designs. Often, too, she saw things in which she was interested and which she really had seen but had not attended to before.

One day she had been gathering a small orchid called pogonia or lamb's tongue. Most of these pogonias are shell-pink, but perhaps one out of a hundred is white. She hunted all day for a white one, but failed to find one. That night during hypnagogia she saw, distinctly, two white pogonias near a clump of alders and low laurel in the marsh through which she had searched. The next morning she went back to the place and found the two flowers exactly as they had appeared in the hypnagogic picture. Thereupon she remembered: The previous day, just as she had reached this part of the marsh, one of her companions had punctured her hand on a barbed-wire fence, and the girl had turned and bound it up.

At college, when she was writing an essay, she wished to quote a certain stanza from a poem; but she had forgotten several of the lines and could not remember from what poem the stanza came. In her next hypnagogic state she saw the entire stanza in print. One of the lines was worded differently from the way she had remembered it; but,

⁴⁵ Kahlbaum, quoted by G. Störing, *Mental Pathology in Its Relation to Normal Psychology* (Loveday, tr.), 1907, 22 (Sonnenschein, London).

⁴⁶ Cf. Taine, op. cit., 67-70.

⁴⁷ Abercrombie noted this: *Inquiries*, 1833, 260.

⁴⁸ For examples, cf. Taine, op. cit., 49-52; Taylor, *Readings*, 561-564.

when she consulted the source on the following day, she found that the hypnagogic version was correct.

Another time, upon arriving with her mother at their summer cottage, this girl "searched everywhere" for the key to a storage closet. As soon as the house was dark she had a vivid image of the key in a particular drawer through which she had looked. The key was there.⁴⁹

Gheury de Bray wrote: "It has repeatedly arrived to me, lying awake, after sleep, with eyes shut, to become suddenly aware that *I see very distinctly in detail* things pictured independently of any volition whatever." Among these things were landscapes which moved as though seen from a train.⁵⁰

Tuke mentioned a man who, "on awakening in the morning, saw standing at the foot of his bed a figure in a sort of Persian dress. It was as plainly to be seen, and as distinct, as the chairs and tables in the room. Looking steadfastly at it, however, he observed that the door behind it was plainly to be seen also, and presently the figure disappeared. Considering the matter afterwards, he recollected that he had had a dream, in which the Persian figure played a conspicuous part; and thus the whole was satisfactorily explained, it being evident that the dream, as far as this part of it was concerned, had continued after he was awake."⁵¹

One of Combe's friends had in his house a bust of Curran. A servant girl who lived there went to bed one night very tired. Early the next morning she awoke and saw at the foot of her bed the apparition of Curran, pale like the bust, but dressed in a sailor's uniform and wearing immense whiskers. Terrified, the girl woke her fellow servant and asked if she did not see the specter. She, however, saw nothing and tried to calm her friend; but the one who saw the figure continued to see it for several minutes.

Apparently the sailor's clothes and whiskers came from impressions of some sailors who also were employed by the family.⁵²

Miss B., one of Prince's cases of multiple personality, was in a hypnotic phase called B IVa. Her eyes were closed. She was conversing with Prince on a topic which held her attention. In order to communicate with her coconscious personality, Prince whispered into her ear. While he was whispering, B IVa asked, "Where are you? Where have you gone?" She continued the conversation and remained alert; but

⁴⁹ Abstracted from a student's report to Arthur H. Pierce; mentioned in J. Philos., 1905, 2:294.

⁵⁰ Gheury de Bray, J. Soc. Psychical Res. (E.), 1922, 20:256.

⁵¹ Adapted from Tuke, op. cit., 54. Cf. also Abercrombie, op. cit., 257; Taine, op. cit., 58-59; Gurney and others, op. cit., 1:390-391, 479; Raymond Royce Willoughby, J. Soc. Psychol., 1934, 5:509.

⁵² Abstracted from Abercrombie, op. cit., 259-260.

whenever he whispered, she felt that he had gone away. If she held his hand, whenever he whispered his hand became a strange object; it seemed to belong to no one in particular, like her own hand after it had "gone to sleep." Without B IVa's knowing it, however, the coconscious personality answered Prince's questions through automatic movements of the head, and showed that *she* knew he was there all the time. Prince performed this experiment repeatedly. He concluded that B IVa's meaning of him as present was organized with his normal voice, not with his whispering; so that, when he whispered, that meaning was dissociated, and he seemed to have vanished.⁵³

Erickson induced hypnotically, in various subjects, hallucinatory color vision; color blindness; and deafness.⁵⁴

Binet and Féré reported many hypnotically induced hallucinations of sight, hearing, taste, smell, touch, kinesthesia, and the organic senses.

The same authors reported hypnotically induced unilateral hallucinations. For example:

While the subject's eyes are closed, the hypnotizer gives him a blank sheet of paper and tells him that there is a portrait on it. Then the hypnotizer opens the subject's right eye and tells him that he sees the portrait. Next, he closes that eye and opens the other, remarking that the subject sees nothing there. After waking, when the subject looks with his right eye, he sees the portrait; but with his left eye, he sees only a blank paper.⁵⁵

Willoughby reported that two psychoanalytic patients "saw," "heard," and spoke with the "ghosts" (hallucinated, of course) of the dead relatives about whom their analyses were particularly concerned at the time.⁵⁶

A physician traveled some distance by sea to visit a woman who was a near relative and about to die of tuberculosis. On his return journey, he took some laudanum to prevent seasickness. While lying on his couch, his relative appeared before him as clearly as though she were present. He knew that it was an apparition caused partly by the drug, but he could not make the figure go away.⁵⁷

Many a man in great danger, for example, in war or in shipwreck, has "actually seen and heard" the members of his family who were nowhere near.⁵⁸

⁵³ Cf. *Clinical and Experimental Studies*, 1929, 8-10, or 1939, 57-58.

⁵⁴ J. Exp. Psychol., 1938, 22:581-588; J. Gen. Psychol., 1939, 20:61-89, 1938, 19:127-167.

⁵⁵ Alfred Binet and Charles Féré, *Animal Magnetism*, 1905, 211ff. (Kegan Paul).

⁵⁶ Loc. cit., 509-512.

⁵⁷ Abercrombie, op. cit., 1833, 261.

⁵⁸ A typical example is in *ibid.*, 260.

Many hallucinations come from coconscious processes.

Janet told a hypnotized subject that when he touched her thumb she would see a butterfly, and that when he touched her little finger she would see a bluebird. After she awoke, depending on whether he touched her thumb or her little finger, she hallucinated a butterfly or a bluebird.

He told another subject that when he showed her a blue color she would hear the bells ring. This subject was functionally blind in her left eye. After she was awake, Janet closed her right eye and showed her a series of colored worsteds. She said only that she was in utter darkness, and she seemed to see nothing; but when a blue specimen was presented, she exclaimed: "Oh! I hear the bells ring."⁵⁹

Lundholm suggested to several hypnotized subjects that a light would appear every time that he gave them an electric shock. The subjects hallucinated the light accordingly. Afterwards, when he presented a real light, the subjects experienced the shock reaction.⁶⁰

Prince described various hallucinations from coconscious processes. Some of these hallucinations were of forgotten memories. Some were translations from one type of experience into another; for example, from tactual and kinesthetic experience into a visual picture. A number seemed to be new organizations of elements from memory and imagination.⁶¹

Some hallucinations seem to express and release criminal tendencies.

"In one instance where a man confessed he had slain a whole family with an axe, he said that a voice told him, 'Take up the axe. Enter and slay. Take up the axe. Enter and slay.'"⁶²

Some hallucinations, on the other hand, represent good tendencies.

Another of Prince's cases, Mrs. R., had a subconscious personality called Mamie. During hypnosis, Mamie confessed that she was planning to elope with a man. Prince forbade her to do so; but she insisted that she would.

A few days later Mrs. R. came in complaining of a paralyzed arm. When she was hypnotized, she recalled that the paralysis came on

⁵⁹ Pierre Janet, *The Mental State of Hystericals*, 1901, 44 (Putnam). Cf. also Clark L. Hull, *Hypnosis and Suggestibility*, 1933, 401 (Appleton-Century); Leuba, *J. Exp. Psychol.*, 1940, 26:345-351.

⁶⁰ Helge Lundholm, *J. Abn. Psychol.*, 1928, 23:337-355.

⁶¹ Cf. *Clinical and Experimental Studies*, 1929, 305-323, 340-342, or 1939, 373-392, 410-413.

⁶² John J. B. Morgan, *The Psychology of Abnormal People*, 1936, 93 (Longmans).

when she was sweeping in her home; and she could not understand why Prince asked her about it. "Don't you remember?" she inquired. "I looked up and saw you in the doorway; then you asked, 'Why are you sweeping?' 'To go away,' I said. 'But you are not going to elope,' you replied. 'I am!' 'You are not!' 'I *am*!' 'You are NOT!' and with that, my arm fell to my side, paralyzed!"⁶³

Many hallucinations express wishes. Even the gendarme who became hallucinated and deluded about execution⁶⁴ may have wished the original victim to die and may have wished to expiate his own guilt for that or some other reason. Wishes, however, may color any mental process; and there are many other causes of hallucinations, causes organic and experiential. The geometric figures which follow upon injections of mescaline in subject after subject cannot be ascribed to a wish for geometrization. A blind person who hallucinated heads with empty eye sockets would seem moved less by wish than by impression.⁶⁵

Galton wrote of "the maddening effect of solitariness. Its influence," he said, "may be inferred from the recognized advantages of social amusement in the treatment of the insane."⁶⁶

Hallucinations occur most readily when contrary perceptions or thoughts are lacking.

Thus, many persons who are not very abnormal are liable to have hallucinations particularly in the dark, and lose them when the light is turned on.

Müller, who was subject to "distinct images of landscapes and similar objects floating before the eyes," learned to look steadfastly at the wall until the images faded out.

Cold baths, and any stirring contacts with reality, are likewise helpful.⁶⁷

Martin Luther testified: "On Good Friday last, I being in my chamber in fervent prayer, contemplating with myself how Christ, my Saviour, on the cross suffered and died for our sins, there suddenly appeared upon the wall a bright version of our Saviour Christ with the

⁶³ Personally communicated about the case mentioned in Boston Med. and Surg. J., 1890, 122:467.

⁶⁴ Cf. 381, above.

⁶⁵ Mentioned by Heinrich Klüver, in Quinn McNemar and Maud A. Merrill (eds.), *Studies in Personality: Contributed in Honor of Lewis M. Terman*, 1942, 177, 189 (McGraw-Hill). Cf. also Morgan, *op. cit.*, 95-96.

⁶⁶ Galton, *op. cit.*, 174.

⁶⁷ Taine, *op. cit.*, 55.

five wounds, steadfastly looking upon me, as if it had been Christ himself corporeally. At first sight, I thought it had been some celestial revelation, but I reflected that it must needs be an illusion and juggling of the devil, for Christ appeared to us in His word, and in a meaner and more humble form; therefore I spake to the vision thus: Avoid thee! I know no other Christ than He who was crucified, and who in His word is pictured and presented unto me. Whereupon the image vanished, clearly showing of whom it came."⁶⁸

When a citizen of Glasgow in 1832 was recovering from cholera, he saw "human figures about three feet high, neatly dressed in pea-green jackets, and knee-breeches of the same colour. Being a person of a superior mind, and knowing the cause of the illusions, they gave him no alarm, although he was very often haunted by them. As he advanced in strength the phantoms appeared less frequently, and diminished in size, till at last they were not taller than his finger. One night, while seated alone, a multitude of these Lilliputian gentlemen made their appearance on his table, and favoured him with a dance; but being at the time otherwise engaged, and in no mood to enjoy such an amusement, he lost temper at the unwelcome intrusion of his pigmy visitors, and striking his fist violently on the table, he exclaimed, in a violent passion, 'Get about your business, you little impertinent rascals! What the devil are you doing here?' when the whole assembly vanished, and he was never troubled with them more."⁶⁹

In some seriously disordered persons, hallucinations are inhibited by opening the eyes or hearing actual sounds. In some, however, such stimulations favor hallucinations. Consequently, certain patients prefer to keep their eyes open, or to be where there is noise; while other patients keep their eyes closed, or stop their ears.⁷⁰

Another factor in hallucinations is fashion.

As Galton said, "When popular opinion is of a matter-of-fact kind, the seers of visions keep quiet; they do not like to be thought fanciful or mad, and they hide their experiences, which only come to light through inquiries such as these that I have been making. But let the tide of opinion change and grow favourable to supernaturalism, then the seers of visions come to the front. The faintly-perceived fantasies of ordinary persons become invested by the authority of reverend men with a claim to serious regard; they are consequently attended to and encouraged, and they increase in definition through being

⁶⁸ Quoted by Tuke, *op. cit.*, 51.

⁶⁹ Macnish, quoted by Taine, *op. cit.*, 56. Cf. also Taine, 56-57.

⁷⁰ Störing, *op. cit.*, 23-26.

habitually dwelt upon. We need not suppose that a faculty previously non-existent has been suddenly evoked, but that a faculty long smothered by many in secret has been suddenly allowed freedom to express itself, and to run into extravagance owing to the removal of reasonable safeguards."⁷¹

Abstraction or Concept Formation

Ever since men began to think seriously about thought, they have felt that abstract ideas or concepts are more important than other ideas. Heraclitus and Plato took abstract ideas to be the forms or molds of reality itself. Kant took them to be the forms or molds of human knowledge at least. Psychologists who study thought and intelligence have observed that abstract ideas are necessary for intellectual adjustments and express intelligence. Psychologists of the abnormal have noted that abstract thinking wanes as integration declines and that tests of such thinking may be useful for diagnosis and prognosis.

What is the essential psychology of abstraction or concept formation?

Definition. *Abstraction or concept formation means eliciting a generally applicable idea.* Through observing various quadrupeds, birds, worms, bugs, and fishes, a normal person gains the concept "animal"; and when someone shows him a penny, a nail, and a horseshoe, and asks him how they are alike, he replies that they are metal, or are hard, or have something else in common. Even animals learn to meet objects of a given class with a common response;⁷² but animals do not seem to achieve the awareness which indicates a concept.

When a person who is very immature, feeble-minded, brain-injured, schizophrenic, or otherwise intellectually inadequate, is faced with the array of animals or of metal objects which we have mentioned, he is unable to bring forth an idea which is generally applicable to them. Instead, he notices one or more concrete objects, or he offers some general idea which fails to cover all the cases. It is still harder to give an idea which is both generally and precisely applicable, that is, not too general for the objects presented.⁷³

⁷¹ Op. cit., 177.

⁷² Cf. Norman L. Munn, *Psychological Development: An Introduction to Genetic Psychology*, 1938, 348-349 (Houghton Mifflin).

⁷³ Cf. Jane Thompson, *J. Psychol.*, 1941, 11:119-126; Ira C. Nichols and J. McV. Hunt, *Am. J. Psychiat.*, 1940, 96:1063-1083; Eugenia Hanfmann and Jacob Kasanin, *Nerv. Ment. Dis. Monog.*, 1942, No. 67; Kurt Goldstein and Martin Scheerer, *Psychol.*

The process. Apparently, to abstract (in the sense in which the term is used here) is to develop or release a reaction suitable to a group of objects and to become aware of that reaction as meaning such objects.

Whether this reaction develops through differentiation out of some more general reaction, or through combination of more particular reactions, would seem to depend upon whether the individual has a more general reaction or more particular reactions from which to develop one useful for the given group of objects. In either case, in so far as he draws upon his prior learning, abstraction represents a superior kind of transfer.⁷⁴

Abstraction must be distinguished from verbalization. Many a person does "think in words," both when abstracting, and when entertaining the resulting concept; for example, "all of these objects represent 'animal'; and all of those, 'metal.'" Words, however, including words whose meanings should be abstract, can be used apart from abstraction; and there is considerable evidence that abstraction can occur apart from language.⁷⁵

This distinction is important for anyone who would measure abstraction in a clinical subject. For example, a child, a feeble-minded person, or a patient may seem to use the word "red" to mean a concept; but further analysis may show that "red" means to him only the color of a particular object. The similarities-and-opposites items of standard intelligence tests have been used to measure patients' powers of abstraction. Rapaport and Brown showed, however, that those items may test only the verbal, stereotyped product of abstraction which often survives "as an empty shell" after the ability to abstract has been impaired. More indicative are problem-solving tests in which the subject is required to form new concepts.⁷⁵

Memory

Memory, as we noted in the chapter on Learning, includes the making, retention, recall, and recognition of any modification of reaction through experience. In that chapter we considered those several

Monog., 1941, 53:No. 2; Dan L. Adler, *Psychol. Bull.*, 1942, 39:507-508; Hanfmann, Rickers-Ovsiankina, and Goldstein, *Psychol. Monog.*, 1944, 57:No. 4; Livingston Welch and Louis Long, *J. Psychol.*, 1940, 10:211-220; Andras Angyal, in J. S. Kasanin (ed.), *Language and Thought in Schizophrenia*, 1944, 117-121 (Univ. of California Press).

⁷⁴ Cf. Charles H. Judd, *Educational Psychology*, 1939, 514 circa (Houghton Mifflin); also PA 2 57, 58, 8 102, 10 1864, 11 2050, 15 2642, 22 4105, 25 6720, 26 731, 1760.

⁷⁵ David Rapaport and J. F. Brown, *Psychol. Bull.*, 1941, 38:597. They mention particularly the Hanfmann-Kasanin test.

phases of memory, their principal abnormalities, and the psychology of forgetting.

Here we need only to define memory as one form of thought and to outline the integrational types of memory.

Definition. As a form of thought, *memory is revival of experience—experience which is “old and true.”*

Integrational types. The classification which we used for types of attention applies similarly to memory and, as we shall see, to other forms of thought and to action. Each instance of memory may be classified roughly as either unintegrated or integrated; and the unintegrated instances are of four kinds, simple, repressive, compulsive, and dissociated.

Simple memory is casual, random, comparatively unorganized recall. In simple memory, various revived experiences drift into mind, without any guiding principle or high integration.

Repressive memory occurs when welcome recall predominates, through conflictful inhibition, over unwelcome reactions. Thus, one may dwell constantly upon the time one received a medal for bravery and so avoid recalling a demotion for cowardice.

Compulsive memory works also through conflictful inhibition but in the opposite way: the unwelcome recall predominates over welcome reactions. For instance, another person who was demoted but later received a medal “knows” that he has vindicated himself, and he tries to think only well of himself; yet he cannot keep that demotion out of his mind.

Dissociated memory reflects general or special dissociation of the personality, either for the time being, as in hypnagogia, or for a longer period.

In contrast to the four kinds of unintegrated memory, *integrated* memory characterizes the integrated person—the one who remembers according to some guiding principle which all of him approves.

Imagination

Some writers divide imagination into two general types, namely, reproductive imagination and productive or creative imagination. We shall use terms like memory, memory image, and vivid memory for the former and shall take imagination to mean the productive or creative type in so far as it is not reasoning.

Definition. *Imagination is untested new combination of memories or parts of memories.* It is therefore "new and untrue," or not known to be true, as a whole. Therein, apparently, imagination differs introspectively from memory.⁷⁶ Of course, the parts of the new combination may be true, as when one imagines one's dog wearing the feathers of a neighbor's rooster. If the combination is tested, even in thought by coherence with what is known, and if it passes the test, it ceases to be imagination and becomes reasoning.

Integrational types. *Simple* imagination marks the unaroused, undisciplined, or regressive mentality. Such imagination goes on like the play of a small child: one item combines with another, more or less at random, without much relation to the laws of nature.

Repressive imagination means that, through conflictful inhibition, welcome imagination predominates over unwelcome reactions. For example, a girl fails to find interest in her work in a factory. She becomes resentful and unhappy whenever she thinks of the place. Eventually, through considerable effort, she learns to imagine for hours at a time that she is a fine lady living in a mansion. She continues to work in the factory, more or less halfheartedly; but her imagination represses her rebellious and unhappy reactions, for a time at least.

Compulsive imagination works likewise through conflictful inhibition, except that the unwelcome imagination predominates over welcome reactions. Many a person has tried in vain to keep from imagining harm to someone whom he "knows" he ought to love. Other examples are the obsessive, erotic imaginations of some men who oppose all sexual reactions in themselves even during sleep.

Dissociated imagination expresses more or less general or special dissociation. Examples include some forms of mystical thought and dreams.⁷⁷

Unlike the unintegrated kinds, *integrated* imagination is for some purpose which reflects not merely a part but all of the individual. Thus, to win a prize for the most fantastic story, one may set out to imagine such a story. Integrated imagination, however, naturally invites logical or experimental testing and so graduates into reasoning.

Maudsley pointed out that the popular notion of "too much imagination" means not "a large, calm, well-stored, and truly informed

⁷⁶ Cf. Taylor and Culler, J. Abn. Psychol., 1929, 24:345.

⁷⁷ Cf. PA 2 376.

imagination, but a narrow, intense, ill-informed imagination that works wildly without due nourishment of facts and undisciplined by habitual obedience to law—in other words, a one-sided and defective imagination. There never was a truly good imagination without good understanding: and it is ridiculous to attempt to separate them.”⁷⁸

Abnormalities. Abnormalities of imagination have been suggested in the chapters on Conflict, Dissociation, Learning, Acquired Patterns, The Subconscious, and Attention and Perception. Abnormalities of imagination will appear further in later pages, especially in the chapters on Reactions to Stress, and Mental Disorders.

Reasoning

Although the elementary psychology of reasoning is probably familiar to most readers of this book, we need to distinguish reasoning from other forms of thought and to consider reasoning particularly in relation to dynamic and abnormal psychology.

Definition. *Reasoning is ideational problem-solving.* Consequently, so far as it is successful, it is “new and true.”

In this definition, the words “ideational” and “solving” mark reasoning off from mere motor trial-and-error, from chance success, and from mastery other than solution.

Analysis of reasoning. Some authors have held that reasoning cannot be analyzed without misrepresenting it. For them, reasoning is either a supernatural faculty or an intuitive, whole process which cannot be taken apart. Others have argued that reasoning can be analyzed logically but not psychologically, and that the “logical steps” in reasoning are scholastic fictions which are very different from the psychological processes in reasoning. Many have pointed out that the psychological processes differ greatly from person to person, and in the same person at different times. Perhaps our best approach is to assume that reasoning is a complicated process which may be considered either logically or psychologically. Logically, its course may be plotted in terms (propositions, relations, etc.) which stand for the psychological reactions or patterns involved in reasoning. Logical analysis, however, is outside our field. Psychologically, reasoning may be analyzed into phases which vary widely in speed and in degree of consciousness.

⁷⁸ Henry Maudsley, *The Pathology of Mind*, 1880, 303 (Appleton).

These phases, as suggested largely by Dewey,⁷⁹ are the following: (1) *a felt difficulty*, (2) *its classification*, (3) *the rise of ideas*, (4) *selection of ideas*, (5) *new organization of ideas*, and (6) *verification*.

For example: (1) a man traveling in a canoe is surprised to find that his feet are getting wet. (2) He looks for the cause and discovers a one-inch hole in the bottom of the canoe. (3) He thinks of plugging the hole with an unwrapped chocolate bar, or with his handkerchief as it is, or with his handkerchief soaked with pitch from a nearby pine. (4) He remembers that a chocolate bar is soluble in water and that water can seep through an untreated handkerchief; so he chooses to soak the handkerchief in the pitch to make a tight plug. Thus (5) he links canoe, handkerchief, and pitch in a new organization. (6) Coherence with all that he knows, including, in this case, actual test in the water, verifies his solution of the problem.

In this process, some of the phases are run through much more quickly and less consciously than others, or than they would be by another person in the same situation. Thus, we may suppose that the man in the example gave scarcely a thought to the chocolate bar and quickly selected the idea of the pitch-soaked handkerchief; whereas a person who knew little of chocolate and of pitch might have spent much time and conscious thought on these possibilities. A well-practiced person would perceive the trouble and plug the hole less by reasoning than by habit. Often, too, some of the phases occur simultaneously: for example, classification with the rise of ideas, and selection of ideas with new organization and verification.

The same six phases may be made out, more or less condensed, in so-called inductive reasoning and deductive reasoning (which are perhaps inseparable). For instance: (1) Why do I suppose that Lincoln will not always be here to lead us? (2) Because I suppose he is a mortal. (3) He is a mortal because he is a man, and all men, (4) yes, all men, are mortals. (5) Each of these terms includes the one after it: Mortals, men, Lincoln. (6) This conclusion is verified by Euler's circles, by the rules of the syllogism, or by empirical evidence.

Graham Wallas' analysis into "four stages," namely, (a) preparation, (b) incubation, (c) illumination, and (d) verification,⁸⁰ adds detail to the foregoing outline and applies to the outline at more than one point. A man faced with a conscious problem may (a) put his mind to it

⁷⁹ John Dewey, *How We Think*, 1910 (Heath).

⁸⁰ Cited by Woodworth, *op. cit.*, 819.

(preparation) and (b) "let it simmer" (incubation) for some time before he (c) realizes what the problem is (illumination) and (d) verifies his diagnosis sufficiently to classify the problem (our second phase). He may go through the same four stages in getting and selecting ideas (our third and fourth phases), likewise in achieving a new organization and in verifying his solution of the problem as a whole.

In any case, reasoning is a high form of learning; it is learning how to solve a given problem. The successful reasoner adapts or develops through thought, instead of through overt action, a pattern of reaction to the situation.

This does not mean that reasoning derives from thought alone. Reasoning is a form of thought; but it is nourished by experience—observation, statistics, and experiment.

Causes of success and failure in reasoning. In general, reasoning succeeds in proportion to intelligence, experience, integration, and relevant, persistent motivation. In other words, the good reasoner is sufficiently able, informed, well put together, and persistent to work out his problem. He is, indeed, notably persistent: he tries again and again, in various ways, to classify the problem, to find useful ideas, and to apply them to solve the problem.⁸¹

More particularly, our six-fold outline suggests why reasoning sometimes fails and sometimes succeeds, and wherein abnormal persons are likely to fail in reasoning.

(1) The individual must be sensitive to the problem. Sensitiveness implies intelligence, experience, and integration, together with relevant motivation.

A drunken man in the leaking canoe might be too stupefied to notice that his feet are getting wet. A deluded person in that situation could be too preoccupied with his delusions to perceive the problem. A deeply depressed person might perceive the water in the canoe as rising but not as a problem.

(2) Classification requires perception, knowledge, and suitable abstraction. All of these depend upon intelligence, experience, integration, and motivation.

(3) The rise of ideas can occur only if the ideas are there to rise and are sufficiently associated with relevant excitants in the given situation.

⁸¹ Cf. Joseph Rossman, *The Psychology of the Inventor*, 1931 (Inventors Pub. Co.).

Consequently, either an ignorant or an unintegrated mind may fail to call up the needed ideas.

Careful biographical studies indicate that every successful inventor or creative artist brings to his task a rich store of facts, suggestions, ideas, about his problem; and, as he needs, he seeks further ideas that may bear upon the problem.

Most inventions occur in fields with which the inventors are familiar: a mechanic who knows farming invents a machine to help farming; a physicist whose avocation is music invents a new musical instrument; and so on.

The wise conservationist who seeks to improve a forest gathers relevant data from other students and from the forest itself.

According to Galton, "Turner, the painter, was known to give colors to children to daub in play on paper, while he keenly watched for suggestive combinations."⁸²

For some problems requiring originality and insight, two or more heads are better than one.⁸³

For many problems, in daily life, in science, in art, and even in philosophy, the decisive ideas can be gained through controlled experimentation.

To enable the right associations to function, sundry immediate circumstances must be ignored.

Even normal persons, when given a list of words and asked for "free associations," offer different associations according to whether the list comes just before or just after a regular meal.⁸⁴ Many abnormal persons, especially the manic ones, are far too subject to immediate circumstances to reason well.

Also, many everyday habits and attitudes, including prejudices, and irrelevant sets, including false starts on the problem, must be inhibited or dissociated. This explains partly why leisure, fun, a change of scene or of occupation, some unusual emotion, intoxication, fatigue, sleep, or hypnosis sometimes releases ideas which help to solve a problem.⁸⁵

A mechanical engineer in a large city had been trying to solve three technical problems. At this juncture he was invited to his parental

⁸² Adapted from Galton, op. cit., 172.

⁸³ Cf. Richard W. Husband, *J. Soc. Psychol.*, 1940, 11:405-409.

⁸⁴ Cf. R. N. Sanford, *J. Psychol.*, 1936, 2:129-136.

⁸⁵ Floyd L. Ruch, *A Research Memorandum on Methods of Studying Public Opinion in Relation to the War* (mimeographed), 1942 (Soc. Sci. Research Council); Taylor, *Readings*, 635-636; S. M. Haggard, *Brit. J. Psychol.*, 1921, 11:338-340; PA 14 3492.

home in the country for a family reunion. He entered the three problems in his notebook, put the notebook in his pocket, and journeyed to the reunion. He had always been the chief jokester and clown of the family and was so no less on this occasion. During the dinner, however, when the general hilarity was greatest, he jotted down the solutions of two of his problems.

One of Erickson and Kubie's hypnotized subjects produced some cryptic automatic writing which neither he nor another subject could read when awake, but which either subject interpreted readily when in a trance.⁸⁸

Apparently, many so-called mediums, clairvoyants, and fortune tellers hypnotize themselves, not only to astonish and elicit information from their clients, but also to become most sensitive to any clues about the clients.

We know that many poets, dramatists, and other artists have gained fruitful combinations of ideas through emotional exaltation, drugs, fevers, dreams, and various trance-like states. (This does not mean that art and artists are essentially pathological.)

A person who is obsessed or preoccupied with anger, love, or some other strong emotion is obviously unable to reason well about anything which involves more than that particular emotion.

One who is very depressed is likely to be too slowed up to bring forth many useful ideas.

(4) Selection of ideas, (5) new organization, and (6) verification likewise depend upon intelligence, experience, and integration; relevant, persistent motivation; and no more interference from external or internal circumstances than the motivation can overcome.

It is evident that the unintelligent person lacks the capacity to select ideas, to organize ideas anew, and to verify his supposed solutions for many problems.

The inexperienced or uninformed person lacks the knowledge with which to judge ideas, to organize them, and to verify the result.

The unintegrated person fails to "think things through." For example, a person whom the layman calls "idealistic" seems keenly sensitive to problems, is able to classify them more or less, and has ideas; but he does not choose and apply ideas sensibly. An impulsive, impractical person continually starts things which he cannot finish. A hypomanic patient behaves similarly and even forgets a problem before he has begun to solve it.

Anyone who lacks motivation, or whose motivation is overcome by

⁸⁸ Milton H. Erickson and Lawrence S. Kubie, *Psychoan. Quar.*, 1940, 9:51-63.

distractions or other inhibitions from without or within, also fails to work out his problem.

With so many factors entering into reasoning, it is not surprising to find great individual differences in choice of circumstances for constructive thinking.

As C. S. Myers observed, "Some of the finest intellectual work, especially poetic work, has been produced under the constant influence of alcohol, opium, etc., whereas at the opposite extreme equally eminent intellectual workers have totally abstained from such drugs and may have by actual experience found them detrimental to production. Some intellectual workers have laid stress on strictly ordered diet and sleep; the habits of others in these and other respects have been highly irregular. Some insist on, while others deny, the need for physical exercise. Some claim to do their best work in the daytime, others prefer to work at night. Some work better, others worse, after a midday *siesta*. Some find that they can produce their best when walking about their room or in the open air; others work most effectively sitting, and a few even lying down. Some prefer a very lively, some a quiet, environment; some don even a special dress for their work. Some can only work for short spells or under conditions of extreme excitement; others need fewer rests and are far more placid. Many women find intellectual activity impeded by their menstrual periods; whereas some have said that it is just then that they do their best work."⁸⁷

Significance of reasoning. Most students need to be reminded that, so far as we know, *reasoning or "the reason" is no entity or power separate from the rest of the individual*. On the contrary, it is a thoughtful interplay of motives and modification of reaction toward maximal adjustment of the whole individual. Thus it is not like a despot who tells the rest of the people what to do. Reasoning is like a democratic assembly in which every member has free speech and the decision reflects the most persuasive views.

Reasoning or "the reason" is not the only human quality, though it is perhaps the peculiarly human quality. As Santayana wrote, "Reason may be the differentia of man; it is surely not his essence. His essence, at best, is animality qualified by reason. And from this animality the highest flights of reason are by no means separable. The very life of spirit springs from animal predicaments."⁸⁸

⁸⁷ Charles S. Myers, *Occup. Psychol.*, 1938, 12:6-7.

⁸⁸ George Santayana, in *Septimana Spinozana*, 1933.

Reasoning is inseparable from human values. Values and motives reflect each other. Reasoning is the conscious interplay of values, of motives, their mutual adjustment toward the richest possible pattern of values. The process may subordinate some values and develop others; but often it combines them into new and richer values. It also produces the values intrinsic to reasoning; it makes possible the enjoyment of reasoning. In general, according to Spinoza and others who have tried it, the broadest reasoning yields a sound perspective, wisdom, in which most if not all of our values are enhanced.

This interplay of motives and modification of reaction is essentially empirical, realistic. Given the original problem, some lack of adjustment between motives, reasoning must draw from experience, from reality; and it must work according to reality; otherwise it is not reasoning.

Obviously, reasoning is highly economical. The assembly discusses and votes in order to avoid intramural fighting and death and to become increasingly useful. The individual reasons in order to avoid unnecessary effort, pain, and death, and to conserve his interests.

Thus, so far from indicating lack of vitality, as some anti-intellectualists have claimed, reasoning expresses vitality. It is a way of mastering an ever-changing world.

To be sure, reasoning cannot and should not undertake to effect all our adjustments. Many adjustments are taken care of in other ways; for example, one gets needed oxygen through reflexes, ties shoes through habit, takes care of a child through sentiment, follows a leader through imitation, obeys the law through an attitude, and labors for a good cause through idealism which may or may not be reasoned. Moreover, reasoning is the *ideational* solving of problems. Such solving is always motivated, or it would not occur; and the solution when reached invites its own application, as we shall see when we discuss Thought and Action in this chapter; but unless the individual is motivated sufficiently to *apply* his solution to the real situation, only his curiosity about how to meet it is adjusted. Thus, one might figure out how to open a window that has stuck and yet not get around to opening the window. Finally, there are an infinite number of problems or possible problems, and our intellectual resources are limited.

Nevertheless, reasoning can show what problems we may try to solve and what ones we should not try to solve, for the present at least. It can also suggest some ways of solving the chosen problems. Many

of these ways use means other than reasoning; for example, curing a sensitive person's hurt not through argument but through simple friendliness. Moreover, reasoning can suggest some ways of adapting to those problems which are to be left unsolved.

As the highest interplay of motives and modification of reaction on behalf of the whole person, reasoning remains everyone's highest court of appeal, whether or not it is allowed to function as such. This holds both for daily interests and for their extensions which we call art literature, science, philosophy, and religion. If it were not so, dogmatists would not seek to prove, by reasoning, that reasoning is not our best guide and that their authorities are the true ones.

Though reasoning is often an important motive, it is not our *basic motivation*. It is our *highest means* toward adjustment, whether for animal survival or for personal integrity.

When the Sophists seemed to have misled the Athenian youths through reasoning, and the city fathers sought to keep the people from such reasoning, Socrates taught the need of more and better reasoning.

Of course, not everyone can be trusted to reason out everything. Apparently, however, all need equal opportunities for developing their capacities, and the best life for all will result when everyone is free to learn, to express his own views, and to reason out at least his choice of leaders.⁸⁹

Reasoning is the embodiment of intellectual honesty; otherwise it is not reasoning but rationalization (which we shall consider in a coming section). Intellectual honesty is characteristic of every real artist, litterateur, scientist, philosopher, or religionary. Of these, the most evident example is the scientist. To quote Bridgman: "Once the scientific worker has started living the life of intellectual honesty, perhaps in no other spirit than as the condition of success in a field which has aroused his interest, the ideal of intellectual honesty comes to make a strong emotional appeal; he finds something fine in the selflessness involved in rigorously carrying through a train of thought careless of the personal implications; he feels a traitor to something deep within him if he refuses to follow out logical implications because he sees that they are going to be unpleasant; and he exults that he belongs to a race which is capable of such emotions."⁹⁰

⁸⁹ Cf. W. S. Taylor, *J. Soc. Psychol.*, 1945, 22:203-208, or *Bull. Am. Assn. Univ. Professors*, 1946, 32:657-662.

⁹⁰ Adapted from P. W. Bridgman, *Harper's*, 1933, 168:20.

Creative Thought

As presented in the foregoing pages, imagination is untested new combination of memories or parts of memories; integrated imagination tends to graduate into reasoning; and reasoning is ideational problem-solving. What, then, is creative thought?

The term. "Creative thought" covers both (1) the more integrated sorts of imagination and (2) reasoning. The term is used particularly when the outcome is unique and embodies some universal value like playfulness, beauty, goodness, truth, or significant theory.

The process. Practical problem-solving, sound artistic or literary creation, scientific invention, and development of philosophy and reasonable religion are essentially similar. In each, there is a felt difficulty: How can I repair this bread mixer? Whither does this musical theme lead? How should this story develop? How can we bring good music to more people? To what do "good" and "evil" reduce? What is most important in the universe? In each field, the difficulty is classified; ideas arise, are selected, and are forged into a new organization; and the outcome is verified by exacting standards. Creative thought differs in the several fields only in the materials upon which it works and in the values relative to which it verifies the outcome.

Some creative thought becomes vivid, even hallucinatory. Thus, Dickens heard his characters talk; another writer beheld one of her characters, reduced to the size of a doll, coming toward her; and various painters have seen their subject material even when it was not present. Shaw believed that Joan of Arc's "revelations" were just such vivid, creative thinking.⁹¹ Some instances come out in prophetic visions which mystify all who do not ascribe them to chance or to perhaps subconscious perception of natural clues.

The following example occurred more than a hundred years ago, but seems well attested:

On an island off the coast of Scotland, a congregation was assembled and was expecting the minister to appear on the platform. Suddenly one of the men rose up with a scream and, evidently terrified, stood looking at the pulpit. When he could be prevailed upon to speak, he exclaimed, "Do you not see the minister in the pulpit, dressed in a

⁹¹ Cf. 379, above; the reports of various artists; Bernard Shaw, *Saint Joan*, preface.

shroud?" A few moments later the minister did enter the pulpit, seeming as well as ever, and conducted the service. Within the next few days, however, he fell ill and died.⁹²

Other creative thought is not at all vivid, consciously at least, and is not even logically clear, except in the final results.⁹³

Favorable conditions. The conditions which favor creative thought are those which favor reasoning; namely, intelligence, experience, integration, and proper motivation, including sufficient freedom from external and internal inhibitions.

Explication of One's Motives

Another type of thought which needs to be distinguished from the rest is explication of one's motives; that is, *adequately setting forth the causes or reasons for one's reaction.*

"I like thee not, O Dr. Fell;
The reason why I cannot tell."

This, obviously, is failure to explicate one's motives.

"Why, Mr. Politician, do you speak pleasantly to this group of people, when we know that you consider them a lot of fanatics?"

"I speak pleasantly to them for four reasons. First, I believe that everyone ought to speak pleasantly to everyone, so far as possible. Second, I sympathize with these people even though they are fanatics. Third, I hope to convert some of them to a sounder outlook. Fourth, last but not least, I want their votes."

This is explication of one's motives.

Since human motivation is complex, and time and energy are short, no explication of motives is ever complete. Theoretically, however, for each situation in which one's motives are to be set forth, there are practical limits within which we apply the term explication. Short of those limits we call the process partial, inadequate, or specious explication. Of such attempted or professed explication an important variety is called rationalization. To it we shall return in a moment.

To give one's motives may be a problem for reasoning, in that one may have to puzzle out what the motives are. Still, the explication itself is not reasoning; it is observation and report.

⁹² Abstracted from Abercrombie, *op. cit.*, 260-261.

⁹³ Cf. H. Poincaré, *The Foundations of Science* (Halsted, tr.), 1913, 385-394 (Science Press); Downey, *op. cit.*, 117-121.

Explication of one's motives depends upon suitable intelligence, experience, integration, and motivation. The too-unintelligent person cannot know many motives. The one who has never learned to know motives, or who is inexperienced in self-analysis, does not know his own motives. The unintegrated person does not have normally available what he knows, hence is ignorant or self-deceived about himself. The person who is not motivated to explicate his motives naturally fails to do so.

Rationalization

Throughout the ages, parents, priests, teachers, and others have noticed that many a person, when suspect, tries to explain himself so that he will not be suspect. Often his explanation is more ardent than convincing. Often, indeed, he is not consciously trying to deceive others or himself, yet he gives an explanation which is not convincing even to himself. Sometimes, without consciously trying to deceive, he gives an explanation which others know is inadequate but which he seems to believe is adequate; for example, in connection with posthypnotic suggestion.

In a course in abnormal psychology, before the students had learned about posthypnotic suggestion, the professor asked if any member of the class would like to be a subject for a demonstration of hypnosis. A young man offered to be a subject. The professor hypnotized him and addressed him as follows:

"When I tell you to wake up you will wake up without memory of what went on during this hypnosis. Five minutes after waking, and still without remembering anything that occurred during the hypnosis, you will get the box of chalk from the table. You will notice that the box is open and that it contains only chalk; nevertheless, you will pass the box to each member of the class and will invite each one to 'have some of this nice chocolate candy.' Do you understand? All right. *Wake up!*"

The subject awoke with a start. The professor thanked him, bowed him back to his seat, and launched into a systematic lecture on hypnosis. The members of the class began to take notes on the lecture.

After about five minutes, the young man laid down his pen. He got the box of chalk, glanced into it, and passed it around the room, inviting everyone to "have some of this nice chocolate candy."

The professor looked surprised. The students were evidently surprised and amused. The young man was embarrassed. Finally one of the students asked him: "John, why did you do that?"

He replied: "I thought we were getting too serious and should have a bit of humor; but I guess it wasn't a very good idea." He could not explain where he got the idea.

In many nonhypnotic cases, as Freud showed, supposedly acceptable conscious reasons are offered because the real, subconscious reasons are unacceptable to the individual's social group. Ernest Jones was so impressed by Freud's observations, also by the general human tendency to justify "rationally" even the irrational, that he proposed to call conscious but unreal explanation rationalization.⁹⁴

The term pointed to such important truth that it was widely adopted. Nevertheless, the term remained sufficiently ill-defined to confuse some important issues.

Confusion about rationalization. Some writers seem to have concluded that all explication of reasons is rationalization, and even that all reasoning is rationalization.

Of course any such conclusion is absurd. To take up the latter idea first: If all reasoning is rationalization, then so is the "reasoning" that all reasoning is rationalization. Rationalization is known partly by comparison with reasoning.

Specious explication is known particularly by comparison with adequate explication. The psychoanalyst wants his patient to develop adequate explication as a means to mental health. We have considered adequate explication in the preceding section.

Specious explications may be grouped roughly into those which are consciously specious and those which are unconsciously specious; though many a case must be recognized as intermediate.

The consciously specious kind of explication is called, according to its spirit and importance, fibbing or lying. This kind is too familiar to need special discussion here.

Rationalization is neither reasoning, adequate explication, nor consciously specious explication.

Definition. *Rationalization is unconsciously specious explication of one's motives.*

Rationalization is specious explication in that it is false or only partly true; and it is unconsciously specious in that the individual is not consciously trying to deceive anyone.

⁹⁴ J. Abn. Psychol., 1908, 3:166.

Just how completely unconscious of the speciousness one must be to be rationalizing instead of fibbing or lying remains undetermined. Some subjects who have been told in hypnosis to carry out certain suggestions with amnesia do as they were told except that they remember enough to be not quite honest when they explain why they do these things. Still, between the more unconsciously and the more consciously specious explications, the practical difference is real.

Often, of course, we do not know just how far an individual's supposed explication of his motives is specious. Rationalization is possible because human motives are multifarious and hard to discern. They are particularly hard to discern, whether in another person or in the self, when the observer has unwelcome motives. When he has such motives, he may perceive only these, or none of these, in the person observed. Often we mistake rationalization for explication of motives; and sometimes we mistake explication of motives for rationalization.

Varieties and examples of rationalization. There are several varieties of rationalization according to function and method.

First as to function:

Some rationalization fills a void, "explaining" that which otherwise would remain unexplained.

Thus the posthypnotic subject sought to account for offering his classmates chalk as candy.⁹⁵

Some rationalization covers up unwelcome motives.

Apparently the variety just mentioned covers up an uncomfortable sense of ignorance.

A neurotic woman who falls in love with someone whom she knows she ought not to love is likely to find reasons for hating that person and perhaps all similar persons. Some women who have fallen in love with their physicians have turned against all physicians and have become "Christian Scientists."

A woman who wanted no children gave birth to one. She became a "devoted" parent—so tensely devoted that her child was not happy.

Some subconscious sadists have become fanatical antivivisectionists.

A young man was engaged to a girl of a wealthy family. When this family suddenly lost its money, the young man announced that he would marry the girl at once, "to provide for her." Analysis showed

⁹⁵ Cf. 401-402, above.

that thus he hoped to stop people from thinking that he had wanted her for her money—which was true.⁹⁶

Many a selfish person makes much of his supposed altruism. "I do all these nice things for my aunt not because she is rich and old but because I want her to be happy."

Occasionally an altruist is made to feel so *déclassé* by persuasive egoists that he tries to cover up his altruism. "I helped the old lady to cross the street because I want her family to like me."

One of Frink's patients was a quarrelsome fellow who had hoped, by holding out against his family, to get certain things from them. Actually, his refusal to arbitrate lost him all those things and more besides. Until he was psychoanalyzed, he did not acknowledge his fault, and he was violently opposed to Woodrow Wilson's policy of keeping the nation out of war.⁹⁷

The "sour-grapes" mechanism covers up a wish that has become unwelcome because unrewarded. "I cannot reach those grapes. Now I perceive that they are sour."

Other rationalization bolsters welcome motives.

A neurotic person who falls in love with an unsuitable person may find "plenty of good reasons" why he ought to love that one.

A woman who hates her husband without knowing why may hate ostensibly his mustache "because it is not esthetic—he must cut it off for his own good." When the mustache is gone, she hates something else about him.

A woman of Scotch ancestry had a violent temper. She spoke with pride of what she called her "Scotch temper"; and she was glad when her dog, a collie, showed the same trait.

Some sadists are cruel to animals "in order to observe, scientifically, their reactions"; some are cruel to people "for their own good"; some build up elaborate philosophies on behalf of war; and so on.

Many selfish persons argue that everyone is selfish. Altruism, they say, is psychologically impossible. For them the world is divided into the sheep and the goats, those who are honest about their selfishness and those who are not.

Frink analyzed a young man who was a coward. Until he came to understand his cowardice, he championed, fanatically, Wilson's peace policy.⁹⁸ (This is not an argument against peace.)

Much rationalization both covers up unwelcome motives and bolsters the welcome ones.

⁹⁶ Cf. H. W. Frink, *Morbid Fears and Compulsions: Their Psychology and Psycho-analytic Treatment*, 1918, 178-180 (Dodd).

A drunkard takes "just one more drink" to steady his nerve to find the job which will encourage him to stop drinking.

As Martin observed, many political philosophies contain rationalizations. Examples of the interests rationalized are "aristocratic stability of Plato and Aristotle, personal safety of Hobbes, political rights of Rousseau, and property rights of Locke." Morris R. Cohen remarked that "laborers identify their interest with that of the people, the middle classes with that of the public, and the wealthier classes with that of the country."⁹⁷

When Pascal suffered long-continued pain, he found comfort in thinking that Christ's crucifixion had made pain "a link of resemblance, a link of union, between man and God. Moreover, it is the only link between them in the life that now is."

The "sweet-lemon" mechanism both covers up a wish that has become unwelcome because unrewarded and bolsters welcome motives. "So, my fare is restricted to lemons? Well, lemons contain vitamins. Moreover, plain living allows time for high thinking."

As to method: Some rationalization plays up welcome, actual motives: it presents truth but not the whole truth. Some rationalization fabricates welcome motives, though not deliberately or it would not be rationalization. Some denies actual, unwelcome motives. Much rationalization combines more than one of these ways.

The process. Rationalization draws variously upon ideas of actual and possible motives; and it overdevelops the chosen ideas to keep attention from whatever is unwelcome. Thus it represses the unwelcome and conserves the individual's hedonic tone.

Rationalization is essentially self-defensory, both against others' adverse judgments and against twinges from one's own conscience. Rationalization is a self-defensory, repressive overdevelopment of ideas.

Often, no doubt, rationalization is also an unclear attempt to reform the self through suggestion, in that the individual feels that the motives he professes must gain control and become his actual motives. This may work in simple cases. Strong, unwelcome motives, however, are likely to persist until the individual achieves real adjustment, perhaps through conscious insight.

⁹⁷ Adapted from Mabel Florence Martin, *Social Science*, 1937, 12:327; Morris R. Cohen, in Joseph Walter Bingham and others, *My Philosophy of Law*, 1941, 43 (Boston Law Book Co.).

The Question of Primitive Thought

Since the human body grows through stages which somewhat reflect the evolution of the species, various students have looked for similar stages in the individual mind. Thus, the sociologist Lévy-Bruhl supposed that primitive men think "prelogically," in other words, that primitives use thought-forms which are different not only in degree but also in kind from civilized thought. In Lévy-Bruhl's view, the primitive fails to distinguish self from not-self, physical from mental, substance from attribute, cause from effect, consistency from inconsistency, and fact from fancy; he lives in a confused, mystical, subjective world. The psychologist Piaget, who questioned many children, concluded that the young child thinks like Lévy-Bruhl's savage. A number of students of abnormal psychology, especially those who follow Freud, have interpreted subconscious thought, also many dreams, daydreams, myths, hallucinations, and delusions, as primitive. Some literary observers have felt that much of our civilization embodies primitive thought and have asserted, for example, that "pretense is the key to modern civilization."⁸⁸

On the other hand, all such notions of primitive thought have been doubted. Lévy-Bruhl admitted that what he called "prelogical" thinking is not peculiar to primitives; and anthropologists have maintained that primitives think very much as we do, only with different premises and interests according to different conditions of life. Several psychologists, likewise, have inferred that the child thinks essentially like an adult, except that the child has less experience to draw upon and has received less of the tribal discipline and indoctrination. According to Hallowell, "Children of savages are often less childlike in some respects than children in occidental society." Similarly, close examination of subconscious thought, imaginative thought, and thought in mental disorders has shown that much of it, at least, is not simple regression to primitive or childish thought but is disintegrated, misdirected thought.⁸⁹ Moreover, we may doubt whether pretense marks our own

⁸⁸ Cf. Lucien Lévy-Bruhl, *Primitive Mentality*, 1923 (Macmillan), *How Natives Think*, 1926 (Allen and Unwin); Jean Piaget, *The Language and Thought of the Child*, 1926, and later works (Harcourt); PA 14 619, 2173, 275; Carl A. Jung, various writings; Charles Macfie Campbell, *Delusion and Belief*, 1926, 53-58 (Harvard Univ. Press); Schilder, op. cit., 321, 323; E. von Domarus, in Kasanin (ed.), op. cit., 112; and V. F. Calverton, Samuel D. Schmalhausen, and others, *Sex in Civilization*, 1929, 9 (Macaulay).

⁸⁹ Cf. A. Irving Hallowell, Proc. Sixth Institute on the Exceptional Child of the Child Res. Clinic of the Woods Schools (Langhorne, Pa.), 1939, 28-34; Joseph Needham and others, *Science Religion and Reality*, 1925, 28-30 (Macmillan); E. Washburn Hopkins,

more than other cultures, and whether all cultures have not included strong tendencies toward intellectual and moral integrity. In every culture increased experience and reflection should lead to more adequate thought.

Thought and Action

"Does thought really affect action?" a student asks. "Do people act according to what books they read, what colleges they attend, and what they believe? Or, as some seem to think, do people act according to emotion, social pressure, and economics? Does their thinking merely echo or disguise nonintellectual motives? For example, take the belief, 'Honesty is the best policy.' Lots of people believe this; yet how many of them are honest?"

Toward understanding how thought relates to action, we shall distinguish between important factors which are often confused, and shall consider how these several factors work.

Ideomotor action. Whether or not thought is possible wholly apart from muscular activity,¹⁰⁰ we know that ideas tend to "come out" in action. This is true both of conscious ideas and of subconscious ideas.

For example, a practiced driver is a passenger in a car. When the car approaches an obstacle, the passenger is liable to press down with his right foot as though it were on the brake.

A naïve person is seated in front of a table on which is drawn a large plus sign. He is given a pencil from one end of which a button hangs by a thread and is asked to dangle the button over the plus sign as though he were fishing. When the button stops swinging, the subject is asked to "imagine that the button is swinging along the horizontal line, swinging left right left right left right." Soon, to his surprise, the button is swinging just that way. Then when he is asked to imagine that it is swinging along the vertical line, the button changes its course to the new direction. Sensitive measurements would show, of course, that the subject's hand moves slightly, though involuntarily, along the line of which he is thinking. (Some subjects do not show this effect, evidently because they are not really thinking of the suggested motion, or because the muscles of the arm are not involved in the thinking.)

Origin and Evolution of Religion, 1923, 11 (Yale Univ. Press); PA 14 1496, 3624, 2184, 2699, 3819, 1873, 4000; Landis and Bolles, *op. cit.*, 415-417; Harry Stack Sullivan, in Kusanin, *op. cit.*, 15; Norman Cameron, *J. Abn. Psychol.*, 1939, 34:265-270.

¹⁰⁰ Cf. 366-368, above.

Various experimenters have shown that, ordinarily, to think of a movement causes action currents and tension in the muscles concerned, and that such minimal excitation can lead to actual movement.¹⁰¹

A professional pickpocket in the 1890's astonished his colleagues and the Superintendent of Police by stealing a watch in a streetcar where he had no "right to work." He knew that that car "belonged" to two "dips" who were protected by the Superintendent; and he knew that these "dips" and the Superintendent knew that he was a professional from another city. Indeed, he was on his annual vacation at the time and had promised the Superintendent not to disturb the local situation.

When confronted with his crime the interloper explained: "That was not a dip. I didn't need money. But I spotted a fellow standing in the aisle with a thiefguard on his watch and as I studied the thing I saw it was a new trick—a new one on me. I would have liked to beat it; I didn't intend to, because of the Superintendent, who has been square to me. I moved up close to the smart Aleck with his wonderful watchguard only to study it, and I couldn't see it all; only the bit of it that stuck out. It was fastened somehow in the vest pocket; I wanted to see how. My hands did, I mean; my fingers asked me to let them feel out that guard and—and—they bet they could break it, get the watch—and—and they promised they would put the watch back into the pocket on to the guard."

He looked distressed. "I oughtn't to have done it—in my position. Risking everything. I do like to come to this city and feel safe while I loaf. And I had no pal, you see, nobody to bump the fellow and draw off his attention. I think that it was that maybe, added to the new guard, which made me want to see if I could. Anyway I let my hands go, and they went in, felt and understood the guard; they got it, opened it, and I had the watch and all. And, honest, it was the best guard I ever went up against. I held it in my hands, looking it over, and was just about to put it back when the two dips that work that line jumped on the car front and back!" He was obviously frightened. "I saw those two pick me out; I saw them look at each other, then at the fellow I was dipping, then at what I had in my hands. We can see in my business, you know. So they saw me slip back the watch and—leave it. No time to replace the guard as it was. I just dropped it, and they were on me."¹⁰²

In the Beauchamp case, as we have seen, the conscious personality liked school, but the coconscious one wanted to avoid school and tease the conscious personality. She did so by thinking hard and long of being

¹⁰¹ Cf. Magda B. Arnold, *J. Abn. Psychol.*, 1946, 41:110-114; also Arthur Jenness and Ada Petrea Jorgensen, *Am. J. Psychol.*, 1941, 54:253-259.

¹⁰² Adapted from Lincoln Steffens, *Autobiography*, 1931, 228 (Harcourt).

a truant. Thus she forced the conscious personality, despite that personality's contrary desire, to be a truant and get punished.¹⁰³

"Recently it has been discovered that, during recovery from a chemically induced coma, a person may 'will' to clench a hand, in response to a request, but nothing happens. A minute or more later, while the subject may be willing to move a foot, the hand suddenly clenches—to the complete surprise of the subject!"¹⁰⁴

Apparently, every idea does come out in action in proportion as the idea is one of action and is strongly thought;¹⁰⁵ and an idea is strongly thought when it is strongly motivated and is free from competing ideas or other reactions.

Lundholm, as we have seen, got several hypnotized subjects to hallucinate a light every time he gave them an electric shock. Then, when the subjects were awake, a real light made them withdraw their hands as they had learned to do while merely hallucinating the light.⁶⁰

Many persons have learned to do things, even to ride a bicycle, through imagining beforehand exactly the movements to be made in the real situation.¹⁰⁶

Such immediate linkage between an idea and an action is called ideomotor; and the resulting action is called ideomotor action.

This does not mean that the idea itself causes the action; it may mean only that the process which underlies the idea is the causal antecedent of the action. In practical effect, however, we may think of the idea as the cause of the action.

Neither does it mean that the source of every ideomotor action is a precise, mental picture of the action.¹⁰⁸ Any idea which does precisely picture an action is likely to lead to that action; but an unlike idea may also, through association, lead to an action. Thus, I may think of stepping to the door, turning the knob, and opening it; or I may think merely of what I shall see when the door is open; yet, in either case, the door comes open.

Regardless of the form of thought, *ideomotor action is action aroused directly by thought.*

Normally, thoughts are related to acts, either directly or indirectly.

¹⁰³ Cf. 189, above.

¹⁰⁴ Ralph W. Gerard, *Sci. Mon.*, 1947, 64:502.

¹⁰⁵ Cf. F. Matthias Alexander, *The Use of the Self: Its Conscious Direction in Relation to Diagnosis, Functioning, and the Control of Reaction*, 1932 (Dutton).

¹⁰⁶ Cf. Robert S. Woodworth, *Psychological Issues*, 1939, 29-60 (Columbia Univ. Press).

Therein, to quote Holmes and Brandeis, "every idea is an incitement. It offers itself for belief, and, if believed, it is acted on unless some other belief outweighs it, or some failure of energy stifles the movement at its birth."¹⁰⁷

Let us consider some of the factors which enter into the thought-action situation.

Propositions distinguished from intellectual modes. At the outset, following James and others before him, we must distinguish between propositions and what we shall call intellectual modes.¹⁰⁸

"Honesty is the best policy" is a proposition. "Northampton is in Massachusetts" is another proposition. Further examples include "I reached the North Pole," "The moon is made of green cheese," and "Every circle has four corners." A *proposition* is a *formulated, declarative thought*. Ordinarily, this means formulated in words. As we have seen, however, considerable thought can go on without words. Thus, a desert islander who knows no language might formulate in imagery a proposition that this bush is to be avoided or that that food is to be sought.

Perhaps every formulated thought which is not declarative as it stands implies a declarative form of itself, a proposition. For example, "Is it time to go to the train?" implies: "I shall follow your counsel about staying or going now." "Oh that I were free!" implies that "I am ready to act as a free man if and when my present bonds are loosed."

Whether formulated in words or otherwise, a proposition is like a person who rings a doorbell and awaits the householder's reaction. The householder may react in any of several ways. He may invite the visitor in naively, without reference to credentials; he may merely contemplate the visitor; or he may hesitate, or invite him in assuming his credentials, or turn him away, or invite him in subject to certain conditions. Each of these ways of treating the visitor illustrates an intellectual mode. An *intellectual mode* is a *way of reacting to a proposition*.

The most primitive way of reacting to a proposition is simple

¹⁰⁷ Dissenting opinion of Justices Holmes and Brandeis, 1925, 268 U. S., 672-673.

¹⁰⁸ Cf. James, *Principles*, 2:287. James said that belief, for example, was a "psychic attitude" toward a proposition. Since the term attitude has come to mean a general and characteristic kind of motivation, and psychic has become linked especially with spiritism and psychical research, we shall use the term "intellectual mode" instead.

credulity. This is like the innocent child's "Come in!" to every stranger, no matter who he is. Stated psychologically, simple credulity is readiness to act according to a proposition without evidence. Thus, given simple credulity, in each case the proposition cited makes honesty the best policy, sets Northampton in Massachusetts, leaves footprints at the Pole, constitutes the moon of cheese, and endows every circle with four corners.

If and when the primitive thinker is punished for being honest, or finds Northampton in Pennsylvania, or learns that the explorer could not have reached the Pole, or perceives that the moon is inedible, or discovers no corners on a circle, he becomes more or less emancipated from simple credulity and develops some other way of reacting to a proposition. The other ways available to him are mere comprehension; doubt; various types of belief; and hypothesis, considered as an intellectual mode. To these several modes we now turn.

Meanwhile, the distinction between propositions and intellectual modes shows that the proposition, "Honesty is the best policy," is not a belief unless it is believed.

Mere comprehension. One intellectual mode which is available to the more or less sophisticated thinker is *mere comprehension*, that is, *understanding a proposition without reacting further to it*. To return to our simile, in mere comprehension the householder perceives that the visitor is a person who wants to come in; but the householder remains too unconcerned about him, or too concerned about other things, either to hesitate about him, or to accept him, or to reject him. Thus, to merely comprehend the proposition, "Honesty is the best policy," is to understand it yet remain quite unmoved by it.

Naturally, for any significant proposition, mere comprehension tends to make way for one of the less-detached modes. These modes are doubt, the several types of belief, and hypothesis.

Doubt. When the householder is in doubt about the visitor, he is concerned about him, yet he cannot decide whether to accept him or to reject him. *Doubt is conflict about accepting or rejecting a proposition*. For convenience, we shall take this definition to cover all degrees of indecision from marked uncertainty to the extreme doubt which involves worry and fear. Excluded from the definition are, at one end of the scale of indecision, the mild uncertainty of ordinary curiosity and reasoning; and, at the other end, pure terror.

Hume, Bain, and many others have noticed that doubt has much in common with fear. In extreme doubt the individual becomes anxious, even panicky; he cannot eat well or sleep well; he loses weight; and, if the condition continues, he may go off on a tangent, physically or mentally, like one fleeing from a fear situation, or he may develop some physical or mental disorder. In any case, his disposition and work are likely to suffer.

When doubt is aroused, it continues until at least one of the competing reactions loses or gains motivation, or the competing reactions are separated through dissociation, or their conflict is resolved.

It used to be common for young people to pass through a period of intense doubt of religious doctrines. More recently, they often doubt social and economic doctrines. Doubt about persons, education, and vocational choices are familiar also.

A young instructor in a great university had to choose between reappointment as instructor at a small salary, but with the best professional stimulation, and an assistant-professorship in a second-rate university at a much better salary and with rapid promotion but little professional stimulation. Since he was both scholarly and needy the issue was serious. For days he vacillated. He lost his appetite, slept poorly, and became pale and nervous. Finally he accepted the assistant-professorship; he bought his ticket; he checked his baggage; and he boarded the train. Just before the train started, however, he dashed out, sprinted to the baggage car, pulled out his luggage, and stayed on as an instructor.

The mental disorders called "doubting mania" and "the insanity of doubt" seem to be less an outcome of doubt than a symptom of some deeper conflict or other central difficulty.

According to fable, when the king wanted some small jewels bored with none broken, the only craftsman who succeeded was an apprentice whose master had not told him that the penalty for breaking any jewel was death.¹⁰⁹

Doubt is not an unmitigated evil. Often doubt is the way of emancipation from error and to new truth. On the other hand, doubt is so disturbing both to the individual and to his fellows that everyone seems to avoid it so far as possible. Peirce remarked that "belief is

¹⁰⁹ David Hume, *Treatise*, II:III, ix; Alexander Bain, *The Emotions and the Will*, 1886, 509 (Longmans); Paul Sollier, *Le Doute*, 1909 (F. Alcan, Paris); Edwin Diller Starbuck, *The Psychology of Religion*, 1901, 232 circa (Scribner); an experience personally communicated; Philip Coombs Knapp, *Am. J. Psychol.*, 1890, 31:1-23; fable cited by A. A. Roback, *Psychol. Monog.*, 1918, 25:No. 5.

a habit and a satisfactory habit. Doubt is an unsatisfactory lack of a habit." James said that "as a rule we believe as much as we can. We would believe everything if we only could."¹¹⁰ Since no thinking person can believe everything, the normal individual outgrows his narrow, personal interests enough to replace much doubt with relatively objective reasoning and to pass on through reasoning to belief or to hypothesis.

Belief. In belief, the householder accepts the visitor as one who should come in and stay. In disbelief, the householder rejects the visitor. Disbelief is therefore a positive mode like belief; rejection of the visitor as an entrant is acceptance of him as one who is to be sent away; disbelief is belief in the opposite of the given proposition. Accordingly, we shall consider disbelief as but the obverse of belief and shall not treat disbelief apart from belief. This course seems justified by logic and by the history of psychological thought about belief.¹¹¹

In line with suggestions from that history and the point of view of this book, we shall say that *belief is readiness to act according to a given proposition without question*. This definition includes all degrees of acceptance of propositions, from everyday, matter-of-fact belief to intense conviction. It also includes various types of belief, from simple credulity and other forms of what we shall call unintegrated belief to highly integrated belief. The definition excludes only, at one extreme of acceptance, mere reflexes and habits, which are not really readinesses relative to *propositions*; and, at the other extreme, the intellectual mode which we shall call hypothesis.

Belief is thus the psychological opposite of doubt. Belief is only the logical opposite of disbelief, since disbelief, as we have said, is belief in the opposite proposition.

Unlike doubt, belief embodies confidence. Moreover, many a belief releases pent-up emotion or other motivation. Best of all, perhaps, belief offers a way of behavior, either to avoid harm or to gain good

¹¹⁰ Peirce's penciled note in his copy of Stout's *Analytic Psychology*, now in Widener Library, Harvard University; James, *Principles*, 2:299.

¹¹¹ Much of the history is indicated by the following references and those which they contain: James Mark Baldwin (ed.), *Dictionary of Philosophy and Psychology*, 1901 (Macmillan); David Hume, *A Treatise of Human Nature*, I:III, v, x; II:III, x; I:Appendix; James, *Principles*, 2:283-324; James Lindsay, *The Psychology of Belief*, 1910 (Blackwood); Jules Payot, *De la croyance*, 1896 (Alcan, Paris); Charles S. Peirce, *Chance, Love and Logic* (Cohen, ed.), 1923 (Harcourt); James Bissett Pratt, *The Psychology of Religious Belief*, 1907 (Macmillan); and the references in the further notes and at the end of this chapter.

or both, without the pangs of doubt. No wonder a person who loses one belief finds another to take its place, even though, as sometimes happens, the new one is more philosophical and perhaps functions mainly to support the intellectual mode of hypothesis.

Hanfmann noticed that when a traumatic patient tried to interpret objects, a correct interpretation yielded "a 'clicking,' an immediate experiencing of things being right," "an immediate certainty," which had "a high value for the patient."¹¹²

James suggested that one reason many people resort to drunkenness is for the exalted certainty which it yields. "This goes to a fully unutterable extreme in the nitrous oxide intoxication, in which a man's very soul will sweat with conviction, and he be all the while unable to tell what he is convinced of at all."¹¹³

Many a person who loses his orthodoxy, whether religious or political, finds it easier to adopt some other orthodoxy than to become a liberal.

Jastrow remarked that the human mind is primarily a belief-seeking rather than a fact-seeking apparatus.¹¹⁴

The use of belief for releasing pent-up motivation we shall consider in a later chapter, where we examine the notion of "sublimation."

The savage who believes in love magic, and practices it, gains confidence and suggestions which make for success in love.¹¹⁵

Curr, in Australia, observed many natives who were hunting with white men. The typical native, even when hungry and far away from his tribe, would refuse to share a meal of some food which for him was taboo. He had been taught from infancy that everyone who breaks a tribal taboo will become ill and may die.¹¹⁶

Spinoza and modern anthropologists have pointed out that religious dogmas are inculcated to make men obedient.¹¹⁷

Steffens told of a political briber who tried but failed to buy up the socialist wards in Milwaukee. Steffens ascribed the integrity of the voters in those wards to their belief in a better way.¹¹⁸

Every historical epoch which is characterized by belief, said Goethe, is "bright, uplifting, and fruitful for contemporaries and posterity"; and

¹¹² Hanfmann, Rickers-Ovsiankina and Goldstein, *Psychol. Monog.*, 1944, 57:No. 4, 7.

¹¹³ James, *Principles*, 2:284.

¹¹⁴ Eric Hoffer, *The True Believer*, 1951 (Harper); Joseph Jastrow, in Carl Murchison (ed.), *The Case For and Against Psychical Belief*, 1927, 281 (Clark Univ. Press).

¹¹⁵ Cf. Bronislaw Malinowski, *The Sexual Life of Savages*, 1929, 315-316 (Routledge).

¹¹⁶ Cited by Frank Chapman Sharp, *Ethics*, 1928, 179 (Century).

¹¹⁷ *Theologico-political Treatise*, Ch. XIV; Malinowski, in Needham and others, op. cit., passim.

¹¹⁸ Op. cit., 670.

every epoch of doubt, "even though temporarily boasting a sham glory, will pass away."¹¹⁹ This, as we shall see, need not mean traditional or dogmatic belief.

How satisfactory a given belief is in itself, and how much it affects action, depends partly on the integrational type of the belief. Here, as under attention, memory, and imagination, we shall recognize un-integrated and integrated types.

Unintegrated belief. Often, some of the individual is ready to act according to a given proposition without question, while the rest of him is indifferent to the proposition, or works against the readiness pattern, or is dissociated from that pattern, or combines some of these forms of unreadiness. Therein the individual is unintegrated about the proposition and embodies unintegrated belief.

This does not mean that the individual is a multiple personality. Ordinarily, the part which does not subscribe to the proposition is merely one or more "sides," perhaps all the remaining sides, of the individual. For instance: A professional man with two graduate degrees believed that modern bacteriological analysis is significant and that such an analysis had found the water from a certain spring unsafe for drinking. Nevertheless, when he beheld the spring in its country setting under a blue sky, he drank from it and recommended it to all the campers under his care. Thus a large part of him believed not in the bacteriological but in the esthetic test for drinking water; his belief in the bacteriological test was unintegrated.

Unintegrated belief is belief by a part of the individual.

According to what goes on in the rest of the individual, there are several kinds of unintegrated belief, namely, simple credulity, repressive belief, compulsive belief, and dissociated belief.

Simple credulity, as we said when distinguishing between propositions and modes, is readiness to act according to a proposition without evidence. Such readiness is not integrated, at least in a person who should know better. The integrated person is not always conscious of the evidence for what he believes, but he has habits of perception and criticism which keep him from simple credulity, so long as he remains integrated. Simple credulity is characteristic of simple or unawakened minds, and of unsound minds, in so far as they have not become critical

¹¹⁹ Notes to *Westöstlicher Divan*.

or set against whatever proposition is offered them. Simple credulity is common also in normal persons when they are generally or specially dissociated, and is common in their fields of ignorance.

To take a hypothetical case, which is suggested by several real ones:

A great physicist gets drunk for the first time in his life. When he is drunk, someone tells him that the moon has broken in two. Lacking his normal critical powers, he believes what he is told.

When he is sober, he decides to let himself be hypnotized. He is no sooner hypnotized than he readily believes statements which he would never accept when normally awake.

When he is normally awake, he goes to a spiritistic séance. He is amazed by what he sees and hears. He examines all the equipment critically, but he believes much which a person more familiar with the psychology of suggestion would not believe.

Münsterberg noted that "the step from attention to belief is a short one."¹²⁰ It is especially short in simple credulity.

Repressive belief, after what we have said about repressive attention, memory, and imagination, is evidently the predominance, through conflictful inhibition, of welcome belief over unwelcome reaction. Thus, a person who has an urge to steal may (perhaps) check that urge through "believing hard" that if he steals he will go to hell.

Repressive imagination is really a form of repressive belief, in that the part of the person which is given to such imagination believes it, and is ready to act upon it, up to the point where the rest of him intrudes a sense of reality which checks the imagination. For instance, the factory girl who imagines effortfully that she presides over a mansion may catch herself bowing and speaking aloud to her imaginary guests, especially when her fellow workers are out of the way.

Rationalization, as we have seen, is a form of repressive belief; for rationalization overemphasizes welcome ideas to cover up unwelcome ignorance, unwelcome motives, or doubts about welcome motives.

Consciously wishful belief is clearly repressive. Like repressive imagination, such wishful belief shuts out of mind some relatively unwelcome belief or other reaction. An example is the explorer who has run out of food and who, without good grounds, believes that he will be able to find and shoot a buffalo the next day. Other examples are an unpopular girl's belief that she is unpopular because she is superior

¹²⁰ Hugo Münsterberg, *Psychotherapy*, 1909, 117 (Moffat).

to the other girls; and the belief of the oppressed serf that he will have an abundant life in heaven.

Effortful belief in things not visible, which is often called faith, is another form, or a related form, of repressive belief. Such belief ranges from the cynical or desperate to the idealistic.

"'Tis expedient that there should be gods," said Ovid; "and, as it is expedient, let us believe them to exist."¹²¹

A woman reported by Tanner was religious when young but, owing to some bitter personal experiences, became an unbeliever. For the next twenty years she lived with no apparent religious faith until illness, bereavement, and moral conflict filled her with despair. Then a friend suggested to her that one can believe in God voluntarily, without proof, as a focus of living. She decided to try it. Like St. Theresa, who sought and found the visible presence of Christ,¹²² this woman set herself to believe that God exists and to pray to him as present. After a week of this regimen she felt that he was with her. All her worries and conflicts gave way to consolation, confidence, love, and gratitude, even though she realized that the source might be wholly subjective. The experience lasted for two days. Gradually it became less intense, but it recurred fully at times, and it remained available to her whenever she needed it. "The assumption of God is of use to me," she concluded, "and I care less and less whether he exists outside of my own consciousness or not."¹²³

"What do you think of yourself? What do you think of the world? . . . These are questions with which all must deal as it seems good to them. . . . If we decide to leave the riddles unanswered, that is a choice; if we waver in our answer, that, too, is a choice; but whatever choice we make, we make it at our peril. . . . What must we do? 'Be strong and of good courage.' Act for the best, hope for the best, and take what comes."¹²⁴

From such reasoning, James argued for the right to believe voluntarily.¹²⁵ He did not seem to distinguish clearly, however, between belief and hypothesis.

Compulsive belief occurs when unwelcome belief predominates through conflictful inhibition over welcome reaction. For example, a man complains: "Doctor, I can't seem to get over believing that my

¹²¹ *Works* (Riley, tr.), 1912, 3:403 (Bohn's Libraries, G. Bell).

¹²² Cf. 379, above.

¹²³ Cf. Amy E. Tanner, *Psychol. Bull.*, 1907, 4:33-36.

¹²⁴ James Fitzjames Stephen, quoted by William James, *The Will to Believe*, 1896, 30-31 (Longmans).

¹²⁵ *Ibid.*, 1-31.

business partner is a crook, although I know that he is at least as honest as I am." Compulsive imagination is a form of compulsive belief, in that such imagination is the belief of a fraction of the individual which gets beyond control by the rest of him.

Dissociated belief represents a part of the individual which is abnormally free to believe because the rest of him is either generally or specially dissociated from that part, whether for a short time or for a longer time.

Many unintegrated beliefs are variously repressive, compulsive, and dissociated. Among these are the more or less distinguishable forms called daydreams, hypnotic beliefs, dreams (during sleep), compartmented beliefs, obsessions, and delusions.

Daydreams, as everyone knows, have heroes and goals. Usually the hero is the daydreamer himself; but sometimes it is a person in whom he is interested, and sometimes there are two or more heroes, or a group of heroes. Thus, a poverty-stricken mother who knows that she has not long to live may daydream that her children will become prosperous citizens. The goal of a daydream is for its hero or heroes to have, or to be without, some object, condition, or role. Most daydreams are happy. Some, however, are unhappy, apparently to justify an unhappy mood, or to punish the daydreamer for some real or imagined fault, or to win imagined sympathy or fame for him as a sufferer. Perhaps each of these kinds of daydream makes the individual happier, for a while at least.

Hypnotic beliefs have been induced in various cultures, as Wallas said, through "the monotonous sound of the 'bull roarer'; the monotonous movements of the dance; the prolonged maintenance of a difficult bodily attitude; the prolonged direction of the eyesight towards one object, such as a crystal ball or Boehme's polished pewter dish; holding the breath; listening to the rustling of leaves in a tree; the repetition of monotonous phrases; the use of the rosary, etc., etc. The efficacy of these methods is often increased by the action of drugs, by abstention from food or sleep, and by certain kinds of music." The Hindu, Sufist, Neoplatonist, Christian, and Theosophist accounts of the resulting state of mind agree that it is "extraordinarily pleasant," and that "this pleasantness is often associated with an intense conviction that the hypnotized subject is on what some of them call 'a higher plane of being.' This conviction may perhaps be in part suggested by the peculiar feeling of 'levitation' which often results from a slight

dislocation of the nervous system. For good or for evil, the combined psychological discoveries of self-hypnotism, and of the use of alcohol and other narcotics, stand, with the inventions of fire-making and of the artificial cultivation of food plants, among the most important events in human prehistory. In the development of religion, peculiar importance attaches to the fact that if in the hypnotic or quasi-hypnotic state certain beliefs are 'suggested' to the devotee, those beliefs will probably be retained with singular tenacity after the state is past."¹²⁶

Dreams are usually not doubted, they are believed, until the individual wakes.

Compartmented beliefs occur in "mental compartments," provinces of thought which are walled off from other provinces in the same individual. Such compartments might well be called "belief preserves."

It is said that Michael Faraday shut the door of his laboratory when he went into his oratory, and shut the door of his oratory when he returned to his scientific work. Some Catholics, when doing in their own rooms something which the church forbids, turn the Virgin's picture toward the wall. The deacon who is honest on Sundays but a horse trader on weekdays is a familiar type. Lowell described the superstition which "nails a horseshoe over the door, but keeps a rattle by its bedside to summon a more substantial watchman; it hangs a crape on the beehives to get a taste of ideal sweetness, but obeys the teaching of the latest bee-book for material and marketable honey. This is the aesthetic variety of the malady, or rather, perhaps, it is only the old complaint robbed of all its pain, and lapped in waking dreams by the narcotics of an age of science."¹²⁷

Many Americans think they must, and apparently they do, believe such diverse propositions as these:

"Restrictions on individual freedom are un-American.

"No man should live for himself alone.

"Everyone should try to be successful.

"The kind of person you are is more important than how successful you are.

"Education is a fine thing.

"It is the practical men who get things done.

"Poverty is deplorable and should be abolished.

"The Bible tells us that 'ye have the poor always with you.'"¹²⁸

¹²⁶ Adapted from Graham Wallas, *The Art of Thought*, 1926, 204-205 (Harcourt; by permission of the author's executors and the publishers, Jonathan Cape Limited).

¹²⁷ James Russell Lowell, essay, "Witchcraft."

¹²⁸ Adapted from Robert S. Lynd, *Knowledge for What? The Place of Social Science in American Culture*, 1939, 60-62 (Princeton Univ. Press).

In some cases, of course, beliefs which seem inconsistent are not really compartmented but are either a mere hodgepodge or are harmonized through what the individual thinks is an inclusive philosophy.

Obsessions are persistent, recurrent thoughts, whether compulsive, repressive (which perhaps are unwelcome as obsessions, but repress still more unwelcome reactions), or dissociated from the rest of the individual.

According to Hendrick, "a man one day saw an overcoat hanging from the doorknob of his older brother's house. Thereafter he had to go home a roundabout way, so that he should not see this door. Such behavior was completely inexplicable until, in the course of the analysis, he recalled that the instant he had seen the coat he had thought it was crêpe, and then recounted a series of occasions for violently hating his older brother. The illusion that the coat had been crêpe had expressed a deep, repressed wish that his brother might be dead. The avoidance of his brother's house was, therefore, a precaution against the recognition of a hatred which had long been repressed and denied by a conscious feeling of solicitude for his brother's well-being."¹²⁹

Other examples of obsessions appear here and there throughout the present book.

Delusions, as remarked in the section on hallucinations, are seriously unintegrated false beliefs. Some false beliefs, like the primitive belief that the world is flat, are mere errors. A delusion is seriously unintegrated in that the individual holds it without the evidence which he would demand for it if he were normal.

The psychology of delusion is so similar to that of hallucination that only a few examples of delusions follow. Further examples appear at various places in the book.

"At the battle of Wagram, in November, 1809, Monsieur Boutbonne was actively engaged during the whole fray, which lasted from midday until dark. The ranks around him had been terribly thinned by the enemy's shot, so that his position at sunset was nearly isolated; and while in the act of reloading his musket, he was shot down by a cannon ball. The impression produced upon his mind was that the ball had passed from left to right, through his legs below the knees, separating them from his thighs, as he suddenly sank down, shortened, as he

¹²⁹ Adapted from Ives Hendrick, *Facts and Theories of Psychoanalysis*, 1934, 10-11 (Knopf).

believed, about a foot, his body falling backwards, the senses being completely paralyzed by the shock. In this posture he lay motionless during the remainder of the night, not daring to move a muscle for fear of fatal consequences. He experienced no severe suffering; but this immunity from pain he attributed to the stunning effect produced upon the brain and nervous system. 'My wounded companions,' said he, 'lay groaning in agony on every side, but I uttered not a word, nor ventured to move, for I had been made acquainted with the fact that the blood vessels, wounded in this way, did not usually bleed profusely until action took place. At early dawn I was aroused from a troubled slumber by one of the medical staff. "What's the matter with you, my good fellow?" said he. "Ah! Touch me gently," I replied. "A cannon shot took off my legs." He proceeded forthwith to examine my legs; and, giving me a good shake, with a happy laugh he exclaimed: "Get up at once. There's nothing the matter with you!" Thereupon I sprang up astonished and stood firmly upon the legs which I had believed were lost forever. I felt more thankful than I had ever felt in my whole life before. I had, indeed, been shot down by an immense cannon ball, but instead of passing through my legs, as I firmly believed it to have done, the ball had passed under my feet, and had ploughed away a cavity in the earth beneath, at least a foot in depth, into which my feet suddenly sank, giving me the idea that I had been thus shattered by the separation of my legs. That's what the imagination can do!'"¹³⁰

A woman who suddenly became psychotic was taken by two attendants in an automobile to a state hospital. As they entered the grounds, they passed through a stone gate. In her confused state of mind, the woman thought that it was the entrance to a cemetery. She concluded at once that she was to be killed and buried there; so she fought her attendants.

Dreams resemble delusions, and often contain important prototypes. To quote Levin: "A woman has a dream in which she enters her house, whereupon (while still dreaming) she suddenly becomes aware that her mother has died, *although she sees or hears nothing to indicate it*. This in waking life would be called a delusion."¹³¹

Advantages and disadvantages of unintegrated belief. Whatever the form, unintegrated belief shares to some degree the advantages which we mentioned for belief as contrasted with doubt: unintegrated belief may considerably give confidence, release pent-up motivation, and direct behavior.

¹³⁰ Adapted from Tuke, *op. cit.*, 134-135.

¹³¹ Adapted from Max Levin, *Arch. Neurol. and Psychiat.*, 1933, 30:873.

Repressive belief may even make itself true, as we said of some rationalization. In James's words: "How many women's hearts are vanquished by the mere sanguine insistence of some man that they *must* love him! The desire of a certain kind of truth here brings about that special truth's existence; and so it is in innumerable cases of other sorts. . . . where faith in a fact can help create the fact."¹³²

Compulsive belief is unwelcome; the individual complains of it—and well he might. Nevertheless, when his compulsive belief is really threatened, when, for example, the psychotherapist seems about to destroy it, often the belief turns out to be only relatively unwelcome; for the individual clutches it and defends it fiercely. Further analysis shows that that belief releases or represses some unacknowledged motive so essentially that, for his own peace of mind, the individual cannot give it up until he finds some way to satisfy or adjust to the underlying motive. Some compulsive beliefs become more or less integrated, notably in cases of initially resisted conversion to a new faith. St. Paul is an example.

Dissociated beliefs, too, have their values. A mother's daydream that her dead child is only asleep protects her from much grief, perhaps until she can adapt to the fact that the child is dead. Many a daydream is so pleasant that it seems to tone up the individual for better work and even physical health. Various hypnotic beliefs, dreams, and compartmented beliefs function similarly. The man who was a failure as a soldier but who has come to believe that he is the head of all the armed forces is perhaps better company in the asylum than if he thought that he was a mere failure. Moreover, an occasional dissociated belief, for example, a daydream of feeling happy on the morrow, makes itself true through suggestion.¹³³

On the other hand, the advantages of unintegrated belief are usually precarious and not without disadvantages. Any sort of repression, so long as it is repression and not central inhibition, is liable to break down whenever the higher processes become weakened, inhibited or dissociated. Consequently, repressive belief is often more professed than lived.

"It is a distinguishing peculiarity of the Erewhonians that when they profess themselves to be quite certain about any matter, and avow it as a base on which they are to build a system of practice, they seldom

¹³² Adapted from *The Will to Believe*, 24-25.

¹³³ Cf. 21, 44ff., above; 481ff., below.

quite believe in it. If they smell a rat about the precincts of a cherished institution, they will always stop their noses to it if they can."¹³⁴

Carveth Read observed that the pious superstitions of savages "break down under pressure of economy, social fatigue, etc.; they need the support of emotional excitement; they are often expressed by games, dances, shows, and degenerate at last into drama, epic, and fiction."¹³⁵

According to an old Norwegian story, a woman tried to climb a difficult mountain, but found that she slipped back as much as she advanced. Wishing to succeed, she thought of the maxim that faith can move mountains, and she resolved to apply it. She struggled on, saying to herself: "I can, I will! I can, I will!"—until, upon slipping back farther than ever, she burst out with: "I knew it! I knew it!"

Either repressive or compulsive belief stirs up painful conflict which may develop into acute doubt. Moreover, either repressive, repressed, or compulsive belief, like any disparate constellation or system, may take unto itself further rebellious elements and disrupt the personality.

Daydreams, in persons who do not keep sufficiently in touch with the real world, can develop into delusions and even into disparate personalities.¹³⁶ Also, though an ambitious worker's daydream of becoming the head of his factory may encourage him to work toward that end, a daydream's tendency to action is not always helpful. Alnaschar, of the Arabian Nights, invested his inheritance in a basket of glassware and sat behind it, waiting for buyers. He daydreamed that he became a merchant prince; that he married the vizier's daughter; and that he spurned her with a lordly kick. At the thought, he kicked—and destroyed what he had. In any event, much daydreaming establishes unrealistic patterns; and it keeps the individual from developing the sound perspectives and skills which he needs.

"We dream, and dreaming make
The solid earth to shake:
We build a dome, the mirror of our mind,
Whose light doth make us blind
To earth when we awake."¹³⁷

Hypnotic beliefs, dreams, and various compartmented beliefs can be disruptive similarly; obsessions and delusions represent disruption;

¹³⁴ Samuel Butler, *Erewhon*, 1917, 184 (Dutton).

¹³⁵ Report of the British Association for the Advancement of Science, 1913, p. 678.

¹³⁶ Cf. Taine, *op. cit.*, 65; Morton Prince, *Clinical and Experimental Studies*, 1929, 99ff., or 1939, 152ff.

¹³⁷ John Alexander Chapman, in his number of *The Augustan Books of Modern Poetry* (Edward Thompson, ed.), n.d., 23 (Benn).

and all of these are liable to be thwarted whenever the rest of the individual is aroused to oppose his unintegrated belief.

Thus, in unintegrated belief, both the belief and the believer are more or less precariously poised. Outsiders feel this, and observe that "the lady doth protest too much." Often the believer feels it too, hence reacts violently whenever his belief is threatened.

For example, when an insecure person's "self-fantasy" is threatened, he is liable to blow up or even to break down.¹³⁸

"No rage is equal to the rage of a contented right-thinking man when he is confronted in the market place by an idea which belongs in the pulpit."¹³⁹

Tendencies toward integration. As a rule, various forces which make for conflict, dissociation, and unintegrated belief are opposed by strong, though often unsuccessful, tendencies toward integration. We call these tendencies the individual's natural dislike of conflict, his urge to integration, his search for intellectual integrity, and so on. And there is good biological reason for such pressure toward integration. Even the most perfectly compartmented beliefs may satisfy the several "sides" of an individual without conflict so long as he can keep them apart; but sometimes circumstances make them collide.

For example, the priest calls when his parishioner is in an irreligious mood, or the horsetrading deacon meets his recent customer in church.

When Mr. Hanna's¹⁴⁰ postaccident personality developed sufficiently to alternate with his preaccident personality, either personality was embarrassed to find that the other one had made promises which the present one knew nothing of and yet was expected to keep; for instance, to play a game with a friend at a certain hour. Consequently, Hanna wanted to keep either one of the personalities and to forget the other forever. He found, however, that he could not eliminate either one; and the strain of alternation and competition between the two made him fear that his mind would give way completely. He therefore resolved to follow the advice of his physicians and to take both personalities as his own. He welcomed every stimulus to recall, and he tried to recover both sets of memories alike. Finally, by a vigorous

¹³⁸ A "fictive," too-comforting picture of the self. Cf. 33, above.

¹³⁹ Thurman Arnold, *The Folklore of Capitalism*, 1937, 14 (Yale Univ. Press).

¹⁴⁰ Cf. 257, above.

effort, he was able to grasp and keep both sets; and thus he became a normal person.¹⁴¹

The individual whose beliefs are compartmented is like an animal whose living is limited in one or more ways like these:

The animal has learned to avoid his winter enemies in the snow, and his summer enemies in the grass, but does not know what to do when he meets a winter enemy in the grass, or a summer enemy in the snow.

The animal knows each of two adjacent valleys but does not know how the two valleys are related to each other.

The animal has two incompatible impressions of a single territory. One, at least, of these impressions is partly false; but each is true enough to be useful up to the point where they conflict. If ever the animal finds himself at that point in the territory, he does not know which way to turn.

Any animal will do well to know how to meet his enemy wherever he may meet him, how different areas are related to each other, and how his territory is laid out. Thus he can live most surely and richly.

Integrated belief. Any belief which neither conflicts with nor is dissociated from one's other beliefs is *integrated belief*, *belief by the whole individual*. This is, to be sure, an ideal situation;¹⁴² but it is often so approximated that we can recognize integrated as distinguished from unintegrated belief.

Integrated belief represents an integrated individual. Moreover, when such belief is applied in practice, it conserves the individual's integration, so long as all the data which are available to him really support his belief. Hence, as opposed to doubt, integrated belief holds all the advantages of belief with none of the disadvantages of unintegrated belief.

The mystical, faith experience has been reported by many persons. Typically, according to Boggs, it grows out of intellectual or spiritual unrest, struggle, and yearning for truth or unity. The individual believes, however, that the truth or unity will be his. Sooner or later, he discards his troublesome thoughts; he makes his mind "as nearly as

¹⁴¹ Cf. Boris Sidis and Simon P. Goodhart, *Multiple Personality*, 1905, 91-226 (Appleton).

¹⁴² Cf. Ferdinand Canning Scott Schiller, *Problems of Belief*, 1924, 14-15 (Hodder).

possible empty, open, and receptive." Then he feels that there come to him, spontaneously and from within him, truth; a sense of the whole of things; and a blessed relief, joy, and desire to live according to his new experience.¹⁴³

Thus the mystical, faith experience embodies the familiar processes, subconscious thought, incubation, and what is commonly called conversion.¹⁴⁴ The experience seems to originate in doubt; and to develop through repressive or compulsive belief, and often through dissociated belief, toward integrated belief.

Naturally, this experience moves outsiders to protest against "invisible motions and workings of the Spirit, which none can be conscious or sensible of but the person himself, and with respect to which he is liable to be deceived or play the hypocrite."¹⁴⁵ The experience moves many a person who has it, however, to further some new sect, some new way of living, and often, if neither able nor minded to impose his view upon everyone, to win increased religious and intellectual liberty for his country.¹⁴⁶

Hypothesis. Whenever the data are too scant or conflicting to support integrated belief, if the individual is to maintain his own integrity and master the situation he needs the intellectual mode here called hypothesis.

Often hypothesis means an established theory; for example: "All the higher animals have evolved from simpler forms." Often, too, the term means a "working hypothesis," that is, a proposition which one assumes in order to test it or to guide inquiry. Examples of such propositions are: "Beyond that horizon is land." "This epidemic came from the water supply."

We shall continue to use the term in those senses; but we also need to recognize the intellectual mode which entertains a working hypothesis. This mode is like the householder's invitation to the stranger to stay until the householder can learn whether the stranger is acceptable or not. Thus, considered as an intellectual mode, hypothesis makes a proposition a "candidate for verification."¹⁴⁷ *Hypothesis is reasoned readiness to act according to a given proposition long enough to test it.*

¹⁴³ Cf. Lucinda Pearl Boggs, *J. Philos.*, 1920, 17:708-715; also PA 1 894.

¹⁴⁴ Cf. 242-243, 369-372, above.

¹⁴⁵ Quoted by John M. Mecklin, *The Story of American Dissent*, 1934, 228 (Harcourt).

¹⁴⁶ *Ibid.*

¹⁴⁷ Cf. 55-56, above.

Hypothesis is not wholly separate from the other modes, but it is different from them. Unlike mere comprehension, hypothesis is actively participating, doing something about the situation. Unlike doubt, hypothesis is confident, confident enough to give an unproved proposition a fair trial. Belief, too, is confident; but hypothesis is more exploratory than any kind of belief.

Hypothesis and belief. Hypothesis has been confused most often with effortful belief in things not visible, the form of repressive belief which many a cultist has called faith. Both hypothesis and such repressive belief represent choice of a point of view and action according to that choice. Hypothesis, however, reflects a real love of truth, whereas repressive belief indicates a self-defensory mentality. Thus, as compared with repressive belief, hypothesis is not less practical. On the contrary, hypothesis is more adaptive and hygienic; more scientific, humane, and democratic; in that it is wholly honest.

Two groups of young people, let us suppose, occupy two busses and drive into the hills to picnic on a certain lake. Independently, the two groups come to a fork in the road and do not know which way to turn.

One group is devoted to what it calls faith. Accordingly, this group decides to take, say, the left-hand road and to make it lead to the lake by believing so. As the bus proceeds, the members of this group chant together: "This is the right road! This is the right road!" and if any member doubts and continues to doubt, he is ostracized or even ejected from the group.

The other group prefers hypothesis. It decides to take that same left-hand road for ten miles and then, if the road has not begun to go down hill, to come back and take the other road. This bus proceeds no less well than the other bus; indeed, its driving is more serene. The members of this group also sing; but they are not so limited in their choice of themes, they sing more freely, and their foreheads are smoother. Moreover, there is less tension between the members of the hypothesis group, for any one may raise questions at any time, and may point out evidence *pro* or *con*, so long as he allows the evidence to accumulate until it alone is convincing.

Spinoza remarked that "schisms do not originate in a love of truth, which is a source of courtesy and gentleness, but rather in an inordinate desire for supremacy."¹⁴⁸

¹⁴⁸ *Theologico-Political Treatise*, near the end.

Hypothesis seems quite different from daydreaming; yet the line between daydreaming and hypothesis is considerably obscured by make-believe play, drama, literary fiction, and other creative arts. Some make-believe play, and some art, so-called, seems to be little more than daydreaming reinforced by action, language, physical materials, or a combination of these. Apparently more normal, after the first three years of life, is the make-believe play described by Isaacs, in which the child "is almost as well aware as we ourselves of the difference between imagining the fulfillment of a wish, and actually gaining it. Fantasy may lead him to create a make-believe situation, but he continues to feel reality limiting him in that situation just as clearly as we do. Even while he gives himself up to the complete dramatic realization of a make-believe steamer, he *knows* it is make-believe; he does not believe himself to be 'on a ship' in the same sense in which he *knows* himself to be sitting on a chair."¹⁴⁹ Perhaps it would be more accurate to say that the normal child knows intermittently that his make-believe is not real. In any event, sound art, if we may use this term without attempting to define it, would seem to be normal make-believe play developed and rigorously organized to meet esthetic and logical standards (which are not necessarily conventions). It seems evident that normal make-believe play rests considerably, and sound art rests largely, upon hypothesis.

Thus, when the little girl says, "Let's shut our eyes and play we're at Grandma's," she may mean, "and think what we could do there on a rainy day." At any rate, she is ready to act, within limits, according to the proposition that she is at Grandma's until she thinks out its consequences. Sophocles' *Antigone* demonstrates, almost as in a laboratory, what happens under certain conditions when a person disobeys a legal law in order to obey what he believes is the moral law. Meredith's *The Egoist* tests, deductively, the circumstances which produce an egoist; that is, the story follows out those circumstances to their effects upon their immediate victim and the persons he meets. More playful works like Gilbert and Sullivan's *Iolanthe* trace the logical, causal pattern of everyday life as limited or modified by the authors' assumptions. Perhaps every sound work of art presents thus a particular situation, which could be represented by a more or less complex proposition, and enables us to observe the outcome. The elements of

¹⁴⁹ Adapted from Susan Isaacs, *Intellectual Growth in Young Children*, 1930, 106-107 (Harcourt).

fun, beauty, and inspiration enter no less to make the work good in itself.

Though hypothesis is theoretically distinguishable from every form of belief, it is bound up with belief. Augustine's idea that, in order to understand a thing, one must first believe it, suggests the important truth that hypothesis rests on belief. For example, if a person who comes to a parting of the ways hypothesizes that the left-hand road leads to his goal, he believes that there is a left-hand road, that time is passing, and that to try the road is worth while. Moreover, hypothesis leads to belief, belief that this is the right road, or that it is the wrong one, or that the traveler ought to consult a map or ask advice. Normally, of course, hypothesis leads to belief which is less dogmatic than integrated.

Perhaps what James meant by "the will to believe" is the right to hypothesize.

Hypothesis' place in the evolution of the modes. If simple credulity is the most primitive way of reacting to a proposition, hypothesis is the most enlightened, the most highly developed mode. Hypothesis occurs in a person who, no matter what his age, is mature enough to know that he is ignorant, that he can find out many things if he tries in the right way, and that it is good to live and learn. He uses notions, theories, systems, as Dewey has taught, not as finalities but as tools which are "always open to development through use." "Their value resides not in themselves but in their capacity to work shown in the consequences of their use.

"Nevertheless, inquiry is free only when the interest in knowing is so developed that thinking carries with it something worth while for itself, something having its own esthetic and moral interest." It is not true "that the instrumental nature of thinking means that it exists for the sake of attaining some private, one-sided advantage upon which one has set one's heart." "The only situation in which knowing is fully stimulated is one in which the end is developed in the process of inquiry and testing."¹⁵⁰

Hypothesis represents the peak, if not the goal, of the evolution of the intellectual modes.

¹⁵⁰ John Dewey, *Reconstruction in Philosophy*, 1920, 145-146 (Holt). Cf. also Wm. Cecil Dampier Dampier-Whetham, *A History of Science and Its Relations with Philosophy and Religion*, 1931 (Macmillan).

Fictions. Bentham's "fictitious entities," and Vaihinger's "fictions," are assumptions which may be consciously false but seem useful to circumvent difficulties of thought and to control behavior. The underlying philosophy is pragmatic in that it considers ideas as means only; but it is also romantic, or cynical, as in Vaihinger's quotation from Schiller that "a mind sublime puts greatness into life, yet seeks it not therein." Apparently such fictions reduce to divers notions, abstractions, and thought-constructs which serve variously as beliefs and hypotheses.¹⁵¹

Sources of propositions and modes. Both propositions and modes represent patterned reactions which have developed through experience. Thus the proposition, "The moon is made of green cheese," represents a pattern of reaction to moon-and-cheese, no matter how far that reaction is allowed to go. How far it is allowed to go represents the intellectual mode; and this, too, is developed through experience, as when simple credulity makes way for mere comprehension, doubt, belief, or hypothesis. Propositions and modes are developed through various kinds of learning, and from the various motives that initiate learning.

Thus, belief, which appears in beliefs—propositions that are believed—is many-rooted. Beliefs derive from sensation, feeling, emotion, action, imagery, hallucination, imagination, wish, suggestion, imitation, indoctrination, perception, report, inference, satisfaction, and, throughout all, lack of effective opposition from within the person.

As James said, "The whole history of witchcraft and early medicine is a commentary on the facility with which anything which chances to be conceived is believed the moment the belief chimes in with an emotional mood." Holmes remarked that "the heart makes the theologian"; and "the arguments which the greatest of our schoolmen could not refute were two: the blood in men's veins and the milk in women's breasts." Störring observed that "ideas of persecution in paranoia always have for their proximate cause a mood of morbid suspicion, which starts in different ways in different cases." Maudsley concluded that "the way to get rid of an insane delusion is to change the feeling in which it is rooted—to disarm his suspicion if the patient is suspicious,

¹⁵¹ Cf. C. K. Ogden (ed.), *Bentham's Theory of Fictions*, 1934 (Harcourt); Vernon Lee, *Vital Lies: Studies of Some Varieties of Recent Obscurantism*, 1912 (Lane); Morris R. Cohen, *Encycl. Soc. Sci.*, 1931, 6:225-228.

to raise his spirits if he is depressed, to appease his anger if he is offended, to abate his conceit if he is proudly exalted; in that way the particular delusion is deprived of the sap which nourishes it." Pascal, James, and others pointed out that when the unbeliever acts as if he believed, he comes to believe. In Dewey's view, "If research into religious phenomena has proved anything it is that acts, rites, cults, ceremonies, institutions, are primary, emotional beliefs then clustering about them." Hartland reported that "the collective emotions and imagination . . . have had at least as much to do with the generation of religious practices and beliefs as the reason, and . . . the form they have assumed" comes from "physical, social, and cultural influences."¹⁵² Some psychologists have attempted to measure the effect of desire upon belief.¹⁵³ In some cases a system of delusions can be traced to various sources, native and acquired.¹⁵⁴

Many beliefs have defensory value. As Lippmann pointed out, our beliefs seem to shape the world for us, and to put people and things in their proper places. No wonder we set up sundry "justifications" to rationalize our beliefs. Lund found that people often think that their beliefs come much more from reason than they do; and, once a belief is professed, the individual is more likely to hold to it than to admit that he was mistaken in adopting it.¹⁵⁵

Consequently, our beliefs not only embody what we know or think we know; they also hinder learning whatever is contrary to them. In Thomas Browne's words: "As Credulity is the cause of Error, so Incredulity oftentimes of not enjoying Truth."¹⁵⁶

Hypothesis derives essentially from the higher forms of learning. It embodies what according to James is "the highest result of education," namely, "ability to suspend belief in presence of an emotionally

¹⁵² William James, *Principles of Psychology*, 2:309; O. W. Holmes, *The Professor at the Breakfast Table*, Ch. V; Störing, op. cit., 219; Maudsley, *The Pathology of Mind*, 1880, 539; H. N. Gardiner and others, *Feeling and Emotion*, 1937, 209 (American Book); James, op. cit., 2:322; John Dewey, *Experience and Nature*, 1925, 25 (Open Ct.); Edwin Sidney Hartland, *Ritual and Belief: Studies in the History of Religion*, 1914, xiv (Williams and Norgate). Cf. also Jane Harrison, and others, cited in Floyd N. House, *The Range of Social Theory*, 1929, 231-262 (Holt); Lewis Browne, *This Believing World*, 1926 (Macmillan).

¹⁵³ Cf. A. T. Poffenberger, *Psychology in Advertising*, 1932 (McGraw-Hill); Frederick H. Lund, *Psychology*, 1927, 461ff. (Seiler).

¹⁵⁴ Cf. Jackson M. Thomas, *Am. J. Psychiat.*, 1932, 12:285-293.

¹⁵⁵ Walter Lippmann, *Public Opinion*, 1922, 95ff. (Macmillan); Lund, op. cit., 459-469, *J. Abn. Psychol.*, 1925, 20:63-81, 174-196.

¹⁵⁶ *Pseudoxia Epidemica: Vulgar Errors* (Keynes, ed.), 1928, 2:39 (Feber and Gwyer).

exciting idea." The hypothesizer believes, to quote Holmes's parody, that "Truth gets well if she is run over by a locomotive, while Error dies of lockjaw if she scratches her finger."¹⁵⁷

Individual differences follow: Superstitions seem to depend more upon ignorance than upon intelligence.¹⁵⁸ Ordinarily, for a witness, seeing is believing; for an ornithologist, hearing; for a pharmacist, smelling; for a cook, tasting; for a blind person, touching; and for a scientific thinker, coherence with all that he is able to learn.

Thought and action. How thought relates to action depends largely upon the kind of thought; in other words, upon the particular proposition and the particular intellectual mode that deals with it.

Propositions differ in applicability. Some propositions are inapplicable, either inherently or for the present at least. Examples are: "The rainbow ends in a pot of gold which moves away as fast as one approaches it." "I expect to be really understood by a person who has not yet been born." "The Martian physicians know how to prevent the common cold." "If we move this mountain, we can control the flood." Other propositions, in contrast, are applicable: "The rainbow is worth looking at." "My neighbor can be led to understand me better than heretofore. Moreover, perhaps I have worried too much about being understood." "This line of research on colds seems worth while." "We can move out of the flood now, and try to control it eventually."

Different intellectual modes relate differently to action. Neither mere comprehension nor doubt yields any action; though each of these modes tends to give place to belief or to hypothesis which may yield action. Belief in an inapplicable proposition merely consumes attention which might be given to applicable propositions. (Some propositions, including some highly abstract or theoretical ones, are indirectly or potentially applicable, hence lead to useful exploration or preparation for action.) Belief in an applicable proposition brings forth action so far as the belief is integrated, that is, neither conflicts with nor fails to draw upon the individual's various other tendencies to action.

Thus, for an applicable proposition, simple credulity leads to action except in so far as the whole, potentially enlightened, individual is not involved. Repressive belief and compulsive belief alike lead to action except as the action is checked by other reactions. Dissociated belief leads to action except by however much of the individual is dissociated

¹⁵⁷ James, *Principles*, 2:308; Holmes, loc. cit.

¹⁵⁸ Cf. Henry E. Garrett and T. R. Fisher, *J. Appl. Psychol.*, 1926, 10:411-420.

from the given belief. As contrasted with the several kinds of unintegrated belief, integrated belief always leads to action, so long as the belief is integrated. If an able-bodied man perceives that his neighborhood will be flooded if a dike is not repaired now by all who can help, he is likely to believe that he ought to help repair the dike. If he believes this integratedly, he does help repair the dike; and he does so until the threat is past, or until he becomes so fatigued that, instead of believing and helping, he rests. Hypothesis, similarly, leads to action within the limits which the individual sets for the hypothesis.

Different persons, of course, may meet a given proposition with different intellectual modes. For instance, "The water of the Ganges is wholesome" may be merely comprehended by one, doubted by a second, believed (more or less integratedly) by a third, and hypothesized by a fourth.

Moreover, a given person may take the same proposition with different intellectual modes at different times. A Hindu boy may believe the proposition, "The water of the Ganges is wholesome"—until he studies bacteriology. Thereupon he may doubt the proposition, or may come to disbelieve it. Still, he may believe it unintegratedly at ceremonial times, also whenever he feels much depressed or frustrated. If he becomes an engineer, he may make the proposition a hypothesis, a basis for constructive action. If then the hypothesis works out well, it may become his belief anew, yet not a dogmatic belief.

This analysis of kinds of thought, kinds of propositions and of intellectual modes, in relation to action shows why no one should suppose that, since one kind of thought relates to action in one way, another kind of thought must relate to action in the same way.¹⁵⁹ At the same time, it seems clear that all beliefs in applicable propositions, and especially, integrated beliefs in such propositions, do motivate action. Thus there are good beliefs and bad beliefs, according to whether their effects in action are good or bad. Hypotheses, too, motivate action. The intellectual mode of hypothesis, which embodies reasoning, is the highest defense for good beliefs and against bad beliefs. That the mode of hypothesis, and the reasoning which supports it, may prosper, all the world needs intellectual freedom.

"Philosophy," said Whitehead, "is a survey of possibilities and their comparison with actualities. In philosophy, the fact, the theory,

¹⁵⁹ For an example of this fallacy, cf. F. S. Turner, *Knowledge, Belief, and Certitude*, 1900, 453-479 (Sonnenschein), or James Lindsay, *op. cit.*, 58-64.

the alternatives, and the ideal are weighed together. Its gifts are insight and foresight, and a sense of the worth of life, in short, that sense of importance which nerves all civilized effort. Mankind can flourish in the lower stages of life with merely barbaric flashes of thought. But when civilization culminates, the absence of a coordinating philosophy of life, spread throughout the community, spells decadence, boredom, and the slackening of effort. There can be no successful democratic society till general education conveys a philosophic outlook."¹⁶⁰

Other important sources of action. Much action, to be sure, is motivated otherwise than by thought. All who say that society's practices are shaped not by conscious ideas but by events are partly right; for events may arouse reflexes, habits, complexes, and suggestion, including imitation, any or all of which lead to action.

It is well known that violent social action may ensue when reflexes of hunger or other suffering are combined with learned aggressive reactions.

For many persons, as Lippmann pointed out, terms like "the state, sovereignty, independence, democracy, representative government, national honor, liberty, and loyalty . . . have ceased to be intellectual instruments for apprehending the facts we have to deal with and have become push buttons which touch off emotional complexes" and their attendant actions.¹⁶¹

Imitative action is common enough. One young man cited by Davenport visited a meeting of revivalists. His faith was different from theirs, and it remained different; nevertheless, as they shouted "Hallelujah" again and again, he could not refrain from shouting with them. The same author reported cases also of more overt action through involuntary imitation.¹⁶²

Action may occur, too, from conscious thought combined with other motives. Here as elsewhere, different combinations cause different effects. Thus, economic pressure plus a belief in renunciation as the highest virtue may yield stoical starvation; while similar economic pressure plus belief in a racial or ideological call to rule may yield brutal aggression.

¹⁶⁰ Adapted from Alfred North Whitehead, *Adventures of Ideas*, 1933, 125 (Macmillan).

¹⁶¹ Walter Lippmann, *A Preface to Morals*, 1929, 261 (Macmillan).

¹⁶² Frederick Morgan Davenport, *Primitive Traits in Religious Revivals*, 1905, 226, 79, etc. (Macmillan). Cf. also B. S. Gowen, *Am. J. Psychol.*, 1907, 18:27; Andrew D. White, *A History of the Warfare of Science with Theology in Christendom*, 1896, 2:135-167 (Appleton).

Circular effects. Action and thought often interact. For example, if hunger made the ancient Fijians kill off their aged, this practice may have suggested to the survivors the view that every Fijian takes to the next world just the physical and mental powers with which he left this one, hence he ought to die before he becomes frail. This view, likely reinforced by other motives, could well have made the Fijians kill their aged even when food was plentiful.

Similarly, a primitive need for numbers of fighters or workers in any culture could have developed a belief that to limit reproduction is wrong, and this belief could carry over into times when the need is less for quantity than for quality of people.

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16 | Action and Control

Most of those who have written on . . . human life seem to have dealt, not with natural things which follow the general laws of nature, but with things which are outside the sphere of nature; they seem to have conceived of man as a kingdom within a kingdom.

Spinoza

In this chapter we shall survey the genetic types of action and consider voluntary reaction, choice, intention, purpose, will, freedom, responsibility, and some of their disorders.

Genetic Types of Action

The various types of action, like other psychological processes, derive from heredity and environment. Without attempting to distinguish sharply between the various types, actions which are determined by heredity plus ordinary environmental conditions we shall call *native*; and actions which are determined by heredity plus special experience we shall call *acquired*.

Native action. Under this heading come all the basic reflexes and whatever instincts there are. The basic reflexes are a form of action, or are components of action; but they are so elementary that we shall not emphasize them further except as components or involvements of action and other reactions. The instincts, likewise, in so far as they

exist, are important in our lives but not so important for this chapter as the several forms of acquired action.

Acquired action. The actions which are shaped by experience divide, again roughly, into two kinds, automatized and ideomotor.

Automatized actions are those which have become so habitual as to occur subconsciously in themselves, though conscious thought may touch them off. An example is tying a shoe automatically after one has thought, "I must tie my shoe," and while one thinks of other things. Normally, automatized actions are integrated with conscious processes. Abnormally, some automatized actions may occur more or less separately from conscious processes. In many instances, automatized actions seem to function thus through involvement with subconscious ideomotor processes.

Ideomotor action, as remarked in the preceding chapter, is action aroused directly by thought; not necessarily by picturing the act to be performed, but by any strongly associated thought which is not inhibited. Of such action there are, roughly, two varieties, unintegrated and integrated.

Unintegrated ideomotor action falls into the now-familiar categories, simple, repressive, compulsive, and dissociated.

Simple ideomotor action appears in the practiced driver who, as a passenger, involuntarily makes the motions of what he would do if he were driving the car. Simple ideomotor action appears also in the psychologically naive person who reveals his thoughts, to his own surprise, when he rests his hand on the planchette of a ouija board and lets the planchette spell out "what it wants to."

Repressive ideomotor action occurs when one "wills" an action successfully against contrary tendencies. For example, one carries a painfully hot dish, or continues working though tired. Often, as William Brown remarked, such effort represents a conflict between a thought of success and a thought of failure; and often the effort "arouses and intensifies the fear of failure, which prevents the belief in success." Thus "the state is a state of incomplete will."¹ Nevertheless, it is often the best will that one is able to muster at the time.

The opposite form, compulsive ideomotor action, occurs when a relatively unwelcome conscious thought leads to action despite the individual's attempts to prevent it. Thus compulsive ideomotor action overcomes the individual's "better judgment." It does so, in many if not

¹ *Lancet*, 1932, 223:1040.

all instances, because ideas associated with the unwelcome conscious thought are either repressed, or dissociated, or both, from the otherwise dominant consciousness and function subconsciously.

Dissociated ideomotor action comes simply from thoughts which are dissociated from the rest of the individual, for the time being at least. In such action, the individual may be unaware not only of the ideational source but of the action and even of the outcome.

A person who has to write a market report, but whose hand tends to write, automatically, a romantic "thriller," may think so effortfully about writing the market report that he overcomes the tendency of his hand to write something else, and he does write the report, through repressive ideomotor action.

If at any time, while he is trying to write that report, the romantic tale possesses his mind and hand and so gets written against his "conscious will," he experiences compulsive ideomotor action.

If, while he is trying to write the report, or is otherwise occupied, perhaps asleep, one hand or the other writes the story without "his" being aware of the ideational source of this writing, he shows dissociated ideomotor action. If he is not aware that he is writing, or if, upon looking at the paper afterwards, he is psychogenically unable to see what is written, his dissociation is more evident.²

Integrated ideomotor action, of course, represents the integrated person. Brown called such ideomotor action "will in its complete form." It involves either, as he said, "belief that we shall succeed,"¹ or belief that trying is worth while.

Voluntary Reaction

The term "voluntary" applies to normally conscious-and-accepted reactions, and especially to those which the individual controls more or less directly through thought. In what follows, we shall be concerned mainly with such control.

Mechanism. For the control of muscles, James's statement seems to hold: "We are no more endowed with prophetic vision of what movements lie in our power than we are endowed with prophetic vision of what sensations we are capable of receiving. As we must wait for the sensations to be given us, so we must wait for the movements to be performed involuntarily, before we can frame ideas of what either of

² For striking examples of the compulsive and dissociated varieties, cf. Morton Prince, *Clinical and Experimental Studies*, 1929, 160-162, 223-226, 247-251, 324-345, or 1939, 217-219, 284-288, 310-314, 393-416 (Sci-Art); also T. W. Mitchell, *Pro. Soc. Psychical Res. (E.)*, 1912, 26:306.

these things are. We learn all our possibilities by the way of experience. When a particular movement, having once occurred in a random, reflex, or involuntary way, has left an image of itself in the memory, then the movement can be desired again and deliberately willed. But it is impossible to see how it could be willed before.

"A supply of ideas of the various movements that are possible, left in the memory by experiences of their involuntary performance, is thus the first prerequisite of the voluntary life."³

For many voluntary acts, however, James showed that other ideas than images of the movements are the excitants. Often, indeed, "we fail of accuracy and certainty in our attainment of the end whenever we are preoccupied with the way in which the movement will feel. . . . Keep your eye on the place aimed at, and your hand will fetch it; think of your hand, and you will very likely miss your aim." "We say, 'I must go downstairs,' and ere we know it we have risen, walked, and turned the handle of the door." "We know what it is to get out of bed on a freezing morning in a room without a fire. . . . Now how do we ever get up under such circumstances? . . . A fortunate lapse of consciousness occurs; we forget both the warmth and the cold; we fall into some revery connected with the day's life, in the course of which the idea flashes across us, 'Hollo! I must lie here no longer'—an idea which at the lucky instant awakens no contradictory or paralyzing suggestions, and consequently produces immediately its appropriate motor effects." As Thorndike commented: "In general what has *led to* a movement, not what has *come after it*, will lead to it on future occasions. It is not the image of a mouth full of liquid, but the sight of the bottle, that makes the baby reach out its hands. . . . It is the thought of a bill as due, not as having been paid, that makes us draw a check."⁴

Thus, for any voluntary act, the excitant is a previously associated thought. Moreover, for the act to be voluntary rather than compulsive or dissociated, the thought must be at least fairly well integrated; which means that the thought must be repressive if not fully integrated. If, as sometimes happens, a subconscious personality voluntarily acts against or apart from the conscious personality, in other words, induces what are for the conscious personality compulsive or dissociated acts, the subconscious personality does so because its excitant thoughts are at least fairly well integrated within it.

³ Adapted from William James, *Psychology: Briefer Course*, 1892, 416 (Holt).

⁴ James, *op. cit.*, 421-422, 424-425; Edward L. Thorndike, *The Elements of Psychology*, 1905, 283-284 (Seiler).

The same seems to be true for any reaction, whether basic-reflex, appetitive, affective, sensory, faciorespiratory, or thought, which has become voluntary.

In fine, every voluntary reaction derives from well- or fairly well-integrated thought. Voluntary muscular reactions are therefore ideomotor. Any voluntary sensory, thought, or other reactions which are not muscular are not exactly ideomotor but are, let us say, *ideogenic*; a term which we take to include ideomotor. Ideogenic reaction is any reaction aroused directly by thought. *Voluntary reaction is well- or fairly well-integrated ideogenic reaction.*

Experimental studies support this view that voluntary reaction is integrated ideogenic reaction. Bair, at the turn of the century, taught subjects who could not voluntarily move their ears to move them and to control the movements. First he stimulated the ear muscles artificially so that the subject could feel the contraction. Then he got the subject to make diffuse voluntary movements of brow and jaws until these movements included involuntary movements of the ears. At this point he urged the subject to concentrate each time upon the sensations from the movements of the ears; to associate those sensations with the sensations from the adjacent, voluntarily controlled, movements; and, gradually, to relax the associated, adjacent movements and concentrate upon the sensations from the ear muscles, until the thought of these sensations led to corresponding movements of the ears. Bair observed that "the attention directed to one activity tends to inhibit the other activities which may be in progress at the time." Thus, "When all the attention was put upon the movement while the brow was forgotten the movement could be made without any of the concomitant brow movement, whereas when part of the attention was directed on inhibiting the brow movement while the other part was directed to the ear movement both ear and brow responded together."⁵

Some thirty years later Hudgins taught his subjects to contract the pupils of their eyes, and to dilate them, voluntarily. He began with a light, which made the pupil contract, and a bell, which, either by itself or with the light at first, made the pupil dilate. After not more than 200 presentations of the bell with the light, the combination made the pupil contract. Hudgins then asked the subject to squeeze a hand dynamometer every time the experimenter said "Contract," and to relax his grip when the experimenter said "Relax." The dynamometer was so arranged that each squeeze set off the bell, the light, and there-

⁵ J. H. Bair, *Psychol. Rev.*, 1901, 8:502; or in Robinsons' *Readings in General Psychology*.

with the pupillary contraction; and each relaxation of the grip stopped the bell and light and so permitted dilation. Two hundred repetitions induced the subject's pupil, without the bell, to contract, or to dilate, according to the command together with squeezing or relaxing the dynamometer. Thereafter the subject listened to the commands, repeated them subvocally, and, by squeezing or not squeezing the dynamometer, made the light come on for "Contract" or go off for "Relax." After 200 of these trials, the apparatus was unnecessary; for the pupil contracted when the subject said aloud "Contract," and dilated when he said "Dilate." The pupil responded similarly when the subject whispered the words, or even when he repeated them subvocally.⁶

Through somewhat similar methods, Menzies developed in his subjects control of vasodilation and vasoconstriction in the skin of their hands. Several subjects learned to control these reactions through whispering a nonsense word or through merely thinking of the physical stimulus which had been conditioned to the desired response.⁷

Harsh and others isolated and reported voluntary erection of hair.⁸

Todd and Rowlands trained subjects to evoke, at will, certain gastric responses.⁹

Razran secreted more saliva when he thought of saliva in a very familiar language than when he thought of it in a less familiar language.¹⁰

Applications. Such studies cast much light upon normal persons' control of their muscular, emotional, and other reactions; upon abnormal persons' automatic, if not voluntary, blushing, sweating, trembling, vomiting, fearing, heart palpitations, headaches, and so on; upon these persons' losses of voluntary control through conflictful inhibition or even dissociation of the controlling higher processes; and upon retraining in voluntary control.

For instance, as noted by Crafts and others, a given topic may be so associated with the organic reactions basic to a general feeling-tone that, for so long as one thinks of that topic, the feeling-tone persists as a mood.¹¹

⁶ Cf. Clarence V. Hudgins, *J. Gen. Psychol.*, 1933, 8:3-51.

⁷ Cf. Roderick Menzies, *J. Psychol.*, 1937, 4:75-120.

⁸ Cf. C. M. Harsh, J. G. Beebe-Center, and S. S. Stevens, *Psychol. Bull.*, 1939, 36:537; also *PA* 12 5701.

⁹ T. Wingate Todd and Margaret E. Rowlands, *J. Comp. Psychol.*, 1930, 10:167-188.

¹⁰ Cf. Gregory H. S. Razran, *J. Psychol.*, 1936, 1:145-151.

¹¹ Abstracted from Leland W. Crafts, Theodore C. Schneirla, Elsa E. Robinson, and Ralph W. Gilbert, *Recent Experiments in Psychology*, 1938, 289 (McGraw-Hill), apropos of their account of Menzies' experiment.

Hull and Hull described the progress of bladder control in a young child.¹²

Tuke cited several cases of voluntary control of action of the heart, of the alimentary tract, and of the pupil.¹³

Augustine wrote: "Some persons move their ears, either individually or both together. Some move what hair they have, forward and back at will, without moving the head. Some voluntarily regurgitate whatever they eat. . . . I knew a man who could sweat at will. It is well established that some people weep voluntarily and copiously." The same author described a case of voluntary trance.¹⁴

Cullen, in the 1760's, told his students: "The hysteric disease can be, and I believe often is, renewed at pleasure. This, I know, is often doubted, but I believe chiefly because it is difficult to explain how involuntary motions should thus be raised, rather than because of any weakness in the evidence for the fact; but it will not be so extraordinary, if we reflect on the following observations: Merely by recalling to my imagination any piece of indiscretion which I thought I had committed, I have in my chamber, and alone, often blushed as warmly as when the indiscretion was committed. Many laugh by themselves in the same way; and still more can, by the imagination of mournful scenes, induce a flow of tears. None of these, however, are voluntary; but they serve to show that by teaching, as it were, the imagination to recall, at pleasure, the ideas which can excite such and such motions and involuntary actions, we can in a manner render such emotions and actions subservient to the will.

"I knew a lady who was subject to violent hysterics, for which, for a long time, I could assign no reason, till at length, on mentioning by chance the name of a man from whom she had received the grossest injuries, she fell into a severe paroxysm, and then it appeared that they always came on when she thought of that person."¹⁵

Striking examples of abnormal reactions caused by ideomotor mislinkages and dissociations appear in various places and references in this book.¹⁶

Langfeld mentioned a common method of retraining persons who have become paralyzed through injury to the cerebral motor area. Such a person cannot move a paralyzed limb through direct effort; and usually he does not learn to move it through merely having it

¹² Cf. Clark L. and Bertha Iutzi Hull, *Ped. Sem.*, 1919, 26:272-283.

¹³ *Illustrations*, 1873, 327-331. Note also his caution, 330-331 (after Braid); and that of Harsh and others, as per Note 8, above.

¹⁴ Translated by F. Warren Wright from *Opera*, 1569, 5:796, as quoted by Tuke, *op. cit.*, 328-329.

¹⁵ Adapted from William Cullen, *Clinical Lectures*, 1797, 269-271. Cf. also his p. 40.

¹⁶ Cf., e.g., 407-409, 416, 423, above; Index, "Automatic activity," etc.

moved for him. If he tries hard, however, he may make some unimpaired muscles move the limb enough to involve the paralyzed muscles; which quite likely establishes new nervous connections. Thus, gradually, he learns to move the limb.¹⁷

Status of voluntary reaction. There is, of course, no sharp line between voluntary reaction and other sorts of reaction. Nevertheless, when markedly voluntary instances are compared with markedly non-voluntary instances, as a general rule voluntary reaction is the less subject to external conditions, less quickly aroused, more variable, more readily fatigued, more liable to disorders, and more fatiguing.

A toddler carries its doll until it sees something diverting, whereupon it drops the doll like a stone. When older, however, the same individual will carry an important message voluntarily through fire and water.

A nonvoluntary knee jerk occurs more quickly than a voluntary kick.

Solomons and Stein found that supposedly normal persons' handwriting which occurs outside the field of attention is relatively easy, smooth, and characterless; and that the same persons' voluntary writing is more jerky.¹⁸

Bills showed that to pronounce printed words is less fatiguing than to name colors, certainly the more voluntary reaction. He and Shapin reported, for several kinds and lengths of task, less fatigue in paced than in independent mental work.¹⁹

Some disorders of voluntary reaction are mentioned in the last section of this chapter.

Most people prefer play to irksome work. Apparently they do so because play is relatively habitual, impulsive, or both, whereas irksome work is expensively conflictful and controlled.²⁰

These differences between voluntary and nonvoluntary reactions fit in with our understanding, after Jackson, that the higher neural

¹⁷ Cf. Herbert S. Langfeld, in Edwin Garrigues Boring and others, *Introduction to Psychology*, 1939, 271 (Wiley); Janet, *Psychological Healing*, 1925, 710ff. (Macmillan).

¹⁸ Cf. Leon M. Solomons and Gertrude Stein, *Psychol. Rev.*, 1896, 3:508. Cf. also Alfred Binet, *Mind*, 1890, 15:46-57.

¹⁹ Cf. Arthur Gilbert Bills, *J. Exp. Psychol.*, 1935, 18:172-185, *Psychol. Bull.*, 1934, 31:670; Bills and Milton J. Shapin, *J. Gen. Psychol.*, 1936, 15:345. Cf. also Ernest R. Hilgard and Donald G. Marquis, *Conditioning and Learning*, 1940, 257-258, 274-278 (Appleton-Century).

²⁰ Cf. 122-124, above; Charles Edward Skinner, Ira Morris Gast, and Harley Clay Skinner (eds.), *Readings in Educational Psychology*, 1927, 601 (Appleton); Jules Payot, *Will-Power and Work*, 1921 (Funk).

connections are less stable, and represent higher integration, than lower connections.²¹

The differences also explain why Janet taught his psychologically feeble patients to save their higher energies through routinizing their lives; why the efficiency engineer wants the worker to avoid unnecessary decisions and to routinize and automatize his motions; and why Pinel, and others after him, sought to build up their border-line patients to make decisions, hold to purposes, and be self-directing persons.

Evidently, voluntary reaction is developed for meeting complex situations.

Choice

Here "choice" means voluntary selection, a conscious decision between alternatives.

Its mechanism. Dewey showed that "choice is not the emergence of preference out of indifference. It is the emergence of a unified preference out of competing preferences." He explained that choice occurs through several steps or phases²² which we shall mark off and illustrate as follows:

(1) Two patterns of activity block each other. (Dewey said that a habit and some new impulse cause a blocking; but it is obvious that two habits, or two impulses, may compete likewise.) For example, a person who, according to habit, is following an old road is stopped by an impulse to take a new road which branches off from the old one. (2) Thus different possible lines of action are suggested and compete with each other in thought—the person thinks of continuing on the old road, also taking the new one. (3) Moreover, each line calls up its prospective consequences: the new road offers an interesting journey, and the old road, a sure one. (4) Of the several consequences, some are inhibitory, and some are facilitative; in the example given, thoughts of not reaching the destination inhibit the tendency to take the new road, while thoughts of adventure, and of time to come back and take the other road if necessary, facilitate that same tendency. (5) The course whose imagined consequences are, on the whole, most

²¹ Cf. 211-217, above.

²² John Dewey, *Human Nature and Conduct: An Introduction to Social Psychology*, 1922, 193 and circa (Holt).

facilitative is chosen. Thus, if the traveler thinks that the disadvantages of possible delay are outweighed by the advantages of adventure, he takes the new road.

The similarity of this process to reasoning is evident. Indeed, choice is reasoning out the solution of a dilemma. Like all reasoning, it is limited to the individual's store of reactions, including particularly his values, his preferences, whether or not they are clear value-judgments.²³ It is limited also by his integration.

Varieties of choice. Viewed as a whole, apart from many intermediate instances, choice may be either unintegrated or integrated.

Unintegrated choice is, as Dewey called it, unreasonable choice. The object thought of looms so large that "it allows no room for alternatives; it absorbs us, enraptures us, carries us away by its own attractive force." This means that the object arouses some habit or impulse to sweep the field regardless of other habits and impulses.²² Unintegrated choice occurs also when conflict between opposed courses yields only a halfhearted, even though compensatorily energetic, choice. Unintegrated choice expresses a person who, for the time being at least, is not well organized.

Integrated choice is reasonable; it represents a free interplay of all the person's interests, immediate and long-range, and his integration about his chosen alternative as the best one for the given situation. Such choice expresses a person who has learned what the several alternatives lead to, and how to "stop and think" about the problem, perhaps to "let it simmer," until his decision is that of a person who is well organized.

Incidentally, integrated choice, reasonable choice, is not "dry" or anemic. Some moralists, as Dewey remarked, have supposed that a choice between good and evil lies between desire, which has power, and reason, which has authority. "But reasonableness," he pointed out, "is an effective relationship among desires rather than a thing opposed to desire." "The conclusion is not that the emotional, passionate phase of action can be or should be eliminated in behalf of a bloodless reason. More 'passions,' not fewer, is the answer. To check the influence of hate there must be sympathy, while to rationalize sympathy there are needed emotions of curiosity, caution, respect for the freedom of

²³ Cf. George W. Hartmann, *Psychol. Bull.*, 1940, 37:420-421.

others." "Rationality is the attainment of a working harmony among diverse desires."²⁴

Unintegrated choice is like the decision of a legislature most of whose members are ignorant, asleep, hypnotized, drunk, or somehow mentally incompetent; or whose members cannot agree on a measure because they and their constituents divide into obstinate factions which fail to work out a common interest.

Integrated choice is like the decisions of a legislature whose members are guided by their own rules to be informed, alert, frank, and deliberative for the good of the constituency as a whole.

The role of conscience. Choice is affected by conscience, the individual's moral attitudes, as by any other attitudes which are relevant to a given dilemma. It follows that conscience enters particularly into moral choices; that an unenlightened conscience reduces moral choices to sheer custom-, taboo-, or even neurosis-choices; and that an enlightened conscience, one developed through moral education, not indoctrination, makes for reasonable and truly moral choices.²⁵

Intention and Purpose

In the survey of motivation,²⁶ we said that an urge is any persistent active motive; a set is a specific motive; an attitude is a relatively characteristic and general motive; an intention is an ideated set or attitude to effect something; a wish is an ideated urge checked by contrary motivation; a desire is an earnest wish; and a purpose is a desire with an ideated urge to instrumental reactions. Instrumental reactions are those which should overcome or circumvent the obstacles and so enable the desire to be satisfied.

That analysis distinguishes between intention and purpose in motivation and in complication. Intention is *less highly motivated* than purpose in that intention may reflect only a passive readiness, for example, to speak when spoken to; whereas purpose embodies two active readinesses, a strong urge which is checked (i.e., a desire), and an urge to instrumental reactions. Moreover, intention is *less complicated* than purpose in that intention does not include the elaborate or unique instrumental reactions which are characteristic of purpose.

²⁴ Adapted from op. cit., 194-196. Cf. also Graham Wallas, *Social Judgment*, 1935 (Harcourt).

²⁵ Cf. 287-288, above.

²⁶ Chapter 5.

At the same time, the two concepts overlap. Intention may embody an active readiness, even an urge, which, when obstacles appear, may become a desire, call up the instrumental reactions, and develop into a purpose. Purpose, in its ideated instrumental reactions, includes one or more intentions. Consequently, what we shall say now about mechanism, varieties, and effects in behavior applies to both intention and purpose, unless otherwise indicated, in so far as they are alike, and to purpose alone, in so far as it transcends intention.

Mechanism. Purpose is a highly developed motive. Within its limits in each instance, purpose comprehends the immediate and remote, the wish, means, and goal.

Nevertheless, intention, wish, desire and purpose alike are to be understood as natural developments, not only causal but caused. They are essentially ideomotor patterns, variously checked by circumstances. To quote C. J. Leuba, these patterns embody "symbolic representations of previously experienced motivating conditions; and the symbolic representations usually possess something of the motivating power of the original experiences."²⁷ As the philosopher Carroll might have italicized, in the Mock Turtle's song,

" 'Will you walk a little faster?' said a whiting to a snail,
 'There's a porpoise close *behind* us, and he's treading on
 my tail.' "

Purpose's vision reduces to available memories organized in present thought. Its constancy expresses the individual's continuing motives and patterns. Its flexibility, using the means in an unexpected order, developing new means, new instrumental reactions, and even modifying the goal, comes from the individual's various thresholds of reaction, the stimuli that befall him, and his continued learning.

Varieties of intention and purpose. Like the varieties of choice, of belief, and other processes, intention and purpose occur in varieties according to integration. Obviously, a halfhearted purpose, which may be intense but offset by contrary motives, is not well integrated. A wholehearted purpose is well integrated. Nevertheless, purpose draws upon such a range of powers that unless it is somewhat well integrated it is not purpose but mere wish, perhaps even a wish to have a purpose.

²⁷ Adapted from Clarence J. Leuba, *Psychol. Rev.*, 1930, 37:430.

Effects in behavior. In proportion as either intention or purpose is integrated and applicable, it shows effects in behavior. This is true both of immediately and of mediately or subconsciously intended behavior.

The father of a two-year-old girl was washing the child's hands before supper. Hurriedly he pulled out the stopper to let the water out—only to be met by loud cries: "No! I do it!" To appease the child, he had to fill up the bowl again and let her pull out the stopper as she had intended.

When this child was three years old, she liked to help get supper. One time she found that somebody else had brought in the milk. Immediately she broke forth into weeping and wailing. She was pacified by putting the milk back for her to bring in anew. Another time, even though the milk was returned for her, her distress continued, for she had wanted to be wholly responsible for the milk.

The same child showed increasing flexibility in her intentions from the beginning. At seventeen months, she was liable to want, say, to get a drink of water from the faucet upstairs, in which case any attempt to substitute another faucet would precipitate a storm. At twenty-one months, when she was offered a substitute, she would stop still for several seconds, then agree to the change.

De Kok urged that a game is so serious to a child that, if the game must be interrupted, the child should be warned in advance. "To pick him up and carry him off when he is in the midst of some creative game is nothing short of cruelty."²⁸

Zeigarnik got subjects to enter upon various little tasks which interested them. Half of the tasks she interrupted; the rest she allowed the subjects to finish. Afterwards, she found that the subjects remembered more of the uncompleted than of the completed tasks.²⁹

Wright found that barriers placed between human subjects and their goals made the subjects more eager to gain those goals.³⁰ Perhaps the

²⁸ Winifred De Kok, *Guiding Your Child Through the Formative Years*, 1935, 128 (Emerson).

²⁹ Cf. the summaries in K. Koffka, *Principles of Gestalt Psychology*, 1935, 334-341 (Harcourt); Ovsiankina's work also in J. F. Brown, *The Psychodynamics of Abnormal Behavior*, 1940, 217-218 (McGraw-Hill); and these and other studies in Kurt Lewin, *A Dynamic Theory of Personality: Selected Papers* (Adams and Zener, trs.), 1935, 242-254 (McGraw-Hill). Cf. also Saul Rosenzweig, *Psychol. Bull.*, 1936, 33:797.

G. W. Boguslavsky and E. R. Guthrie performed an experiment similar to Zeigarnik's but got different results, perhaps from different experimental conditions (*Psychol. Bull.*, 1941, 38:575-576).

So far as Zeigarnik's results are typical, they would seem understandable through familiar psychology of learning (cf. Chapter 11 above; also Edwin R. Guthrie, *Psychol. Rev.*, 1940, 47:139).

³⁰ H. F. Wright, *Contribs. Psychol. Th.*, 1937, 1:No. 3.

explanation is that the barriers prompt the subjects to form intentions or purposes to succeed.

Fryer showed experimentally that intentions affect output in repetitive mental work not only directly but also through determining how the subject interprets changes, for example, hearing bells and words, in the surrounding circumstances.³¹

The "level of aspiration" as a general intention evidently affects performance in experiments as in daily life.³²

In his study of a stutterer, Aikins remarked that "when a person has an obvious weakness . . . he is likely to strive desperately to compensate for it by some kind of conspicuous achievement; he gets fixed purposes that he follows desperately, and he cannot adjust himself flexibly to changing conditions that upset his program of self-vindication."³³

One time when the child already cited was two years old, her father was putting her into her crib for the night. She was taking to bed with her, as usual, her toy dog. The child was so capersome that her father told her that if she did not quiet down he would take away the dog. She did not quiet down, so he took the dog. She cried for some minutes, then went to sleep. At least three times that night, while she was asleep, she said clearly: "Want dog."

Many a person has learned to relax and to go to sleep for ten minutes, or fifteen minutes, according to circumstances. Usually he sleeps well and perhaps dreams—until he finds himself waking up at the predetermined moment.

A chemist who walked to and from his work said: "Any morning when I think that I ought to stop at the bank on my way home at noon, I imagine myself turning from my homeward way and going to the bank; then I forget all about it. At noon, I come home thinking of other things; but when I discover that I have turned toward the bank, I remember my errand."

According to Guthrie, a man who was charged with shooting his neighbor explained himself to the court as follows: He did set out to kill the neighbor; he took a rifle, he hid behind some shrubs near the neighbor's cabin, and he waited with his gun pointed at the door. Then, however, he began to consider and finally decided not to kill him. Suddenly the neighbor appeared, and the rifle went off. The man did not remember pulling the trigger. As Guthrie observed, psychologically the man both had and had not the intention to kill the neigh-

³¹ Cf. Douglas Fryer, *Brit. J. Psychol. (Gen. Sect.)*, 1934, 24:433. Cf. also James J. Gibson, *Psychol. Bull.*, 1941, 38:784.

³² Cf. Lewin, *loc. cit.*; John W. Gardner, *Psychol. Rev.*, 1940, 47:59-68.

³³ Herbert Austin Aikins, *J. Abn. Psychol.*, 1923, 18:151.

bor. "His original intention had broken down except in one important particular, the readiness to pull the trigger."³⁴

A suburban businessman drove into the city, parked his car near a restaurant, had lunch, and returned in his car as usual. Two hours later he drove back into the city, parked about a half mile from where he had parked before, and called on a jobber. When he left the jobber he walked past his car, absent-mindedly recognizing it and speculating about a dent in the fender, and went on to where he had put the car at noon. He got out his keys—and discovered that his car was not there! At once he remembered that he had passed the car and had thought about the dent in the fender; so he returned to his car and drove off, somewhat puzzled about his mental processes.

Often a busy person goes to his desk to do a certain thing, then finds that he is just sitting there; he has forgotten not only what he had intended to do, but also other desk work which he might well do. Often one intends to say something but forgets what it was and cannot think of anything to say. In such cases it would seem that the lapsed intention persists for a time subconsciously, as a set at least, and interferes with conscious processes.

Intentions which persist obsessively in abnormal mental states, and intentions which continue automatically after interruption by abnormal states, were illustrated in earlier pages.³⁵

It is well known that an absorbing purpose can be highly integrative and can even "keep a person going" despite physical disease.³⁶

Roger Chillingworth, in Hawthorne's *The Scarlet Letter*, illustrates the converse effect. Chillingworth, who was deformed and "well stricken in years," had devoted his life to learning and still had a couple of years' work which he wanted to finish. Nevertheless, he persuaded a beautiful young woman to marry him and to precede him to America to live. When he came over to join her, he found that she was stigmatized for having an illegitimate child. He perceived that the father of the child was a fine young minister. Thereafter, Chillingworth lived unto the day when he would be avenged on that man. When he was avenged, he was left without a purpose. To quote Hawthorne: "All his strength and energy—all his vital and intellectual force—seemed at once to desert him; insomuch that he positively withered up, shrivelled away, and almost vanished from mortal sight, like an uprooted weed that lies wilting in the sun." He died within a year.

Lewin mentioned some intentions which do not persist, but which

³⁴ Adapted from E. R. Guthrie, *The Psychology of Learning*, 1935, 206 (Harper).

³⁵ Cf. 282, 268-269, above.

³⁶ Cf. John Rathbone Oliver, *Victim and Victor*, 1929 (Macmillan).

seem to disappear and leave the field free for other motives.³⁷ Perhaps such intentions were not well formed at the outset, or were centrally inhibited by more significant interests, or were satisfied vicariously.

The question of vicarious or substitute satisfaction of intentions and other motives we shall consider in the chapter on Reactions to Stress.³⁸

Will

What is will? Certainly it is no entity, no separate power, so far as anyone knows. Like attention, perception, memory, imagination, reasoning, and choice, "will" is a name for processes or for a quality of processes.

Use of the term. Let us note at the outset that "will" is not limited to successful reactions. As James said, "Willing terminates with the prevalence of the idea; and whether the act then follows or not is a matter quite immaterial, so far as the willing itself goes. I will to write, and the act follows. I will to sneeze, and it does not. I will that the distant table slide over the floor towards me; it also does not."³⁹

Sometimes "will" is a synonym for wish or desire. In what follows, we shall disregard that meaning.

Otherwise, in its broadest sense, "will" covers all voluntary reactions, choices, intentions, and purposes. Thus the term applies to all ideogenic processes which are neither simple, compulsive, nor dissociated; in other words, to *all ideogenic processes which are either repressive, active against compulsion, or at least fairly well integrated.* (A sub-conscious personality, of course, may have a will of its own consisting of ideogenic processes which are, for that personality, either repressive, active against compulsion, or at least fairly well integrated.)

The repressive type of will appeared for a short time in a case of Pinel's. The patient believed that he himself was Jesus Christ. He perceived, however, that he would be kept in the asylum so long as he admitted that he was Christ. He therefore strove to control himself according to convention. Finally he succeeded. He announced convincingly that he had been mistaken; he was not Christ but only the citizen who had been committed to the asylum. To make sure that he was well, the authorities submitted him to a long cross-examination.

³⁷ Cf. Kurt Lewin, *Vorsatz, Wille und Bedürfnis*, 1926 (Springer, Berlin), or *Psychol. Forsch.*, 1926, 7:294-385, *passim*.

³⁸ Chapter 18.

³⁹ *Op. cit.*, 449.

He met every test and, at the end, was given his release paper to sign. Immediately he wrote "Jesus Christ" and lapsed into his delusional system as before.

Will which is active against compulsion is exemplified in Ovid's lines,

"The better path I gaze at and approve;
The worse—I follow."⁴⁰

Will which is at least fairly well integrated occurs in the person who "does what he intends," who has "an indomitable will," or who is "a man of purpose." It occurs also in anyone whose daily living is normally coordinated, rich, unified, and stable.

Often "will" is used in a narrower sense to mean reaction against conflict within the individual; in other words, *will which is either repressive or active against compulsion*.

Effort. The struggle of any *will against resistance*, whether external or internal, is called effort.

All such effort, it would seem, reduces introspectively to proprioceptive and perhaps other sensations. Thus, introspectively, a man's effort to move a rock is the pulls and pressures in his muscles, joints, etc. His effort to keep his fist from hitting a personal enemy is sensations from conflict between the muscles of hitting and the muscles which hold his fists back, and likely from muscles of breathing, facial control, etc.⁴¹

Objectively, on our deterministic hypothesis, the activity which yields the sensations of effort would seem to derive from whatever

⁴⁰ *Metamorphoses*, vii, 20.

⁴¹ Cf. John Dewey, *Philos. Rev.*, 1899, 6:54. As Langfeld pointed out, "It has been argued that, since a person paralyzed in one leg experiences an effort of will when he tries to move the inert limb and yet does not move it, the will experience obviously cannot come from these muscles. But what actually happens is that unknowingly he moves the other limbs or some other member, and it is this movement that gives him the impression of will power." (In op. cit., 286-287.) Or could it be from sensations from other associated muscles, or from remembered sensations?

John J. B. Morgan "found that individuals oppose distractions with increased effort as well as by introducing other factors into their work which will help them to overcome the distractions. These adjustments are not made consciously but reflexly; the subjects often asserting that they do not use the help that their reactions indicate. For instance a customary reaction was to articulate the material used in the process involved. Breathing records were taken which indicated articulation and the subjects were watched through a peep hole. Some subjects who actually moved their lips in articulating denied that they had made any such movements. In such a process as overcoming distractions the exertion of effort is unconscious." (John J. B. Morgan, *Psychol. Rev.*, 1920, 27:104.)

Douglas J. Wilson showed that "during voluntary change from rest to effort... the antagonistic muscles exhibit activity." (*Arch. Psychol.*, 1934, No. 160, 41.)

motives are active at the time. This statement is vague because we know little of how motives work; but it refers effort, and will of every sort, hypothetically, to some naturalistic explanation, and not to a supernatural fiat.

The role of effort in learning, as inhibition of irrelevant reactions, facilitation of relevant ones, and fixation of patterns, has been suggested by Guthrie, Bills, and others.⁴² Effort enters most obviously into control of activity when there is conflict.

Such effort, however, like diffusion, ought to decrease as the learning proceeds, or as the activity becomes habitual. If the effort does not decrease, it is liable to become linked with the activity habitually. Since, too, such effort reflects conflict, which often brings on emergency emotion, the effort may become linked with emergency emotion. Thus, as we saw with regard to repression⁴³ (of which, indeed, effort is often only a special case), vicious circles develop: effort arouses the activity, which arouses more effort, more activity, and more effort; also, effort and the activity arouse emergency emotion, which arouses more effort, more emergency emotion, and more effort. These circles are common in stage fright, in at least one kind of stuttering, in occupational cramps (for example, "writer's cramp"), and in any "dutiful" behavior.

Varieties of will and of effort. The use of the terms "will" and "effort" for all kinds of will and effort confuses their varieties. Actually, a man's effort against a rock which he wholly wants to move represents highly integrated will. His effort to keep his fists from hitting his enemy is either repressive reaction or reaction against compulsion, depending upon whether he is successful or not. In either case his reaction is conflictful, hence not well integrated.

"Strong will" is a popular term for (1) highly effective, integrated will, and (2) effective but highly conflictful will, in other words, severely repressive will.

The severely repressive type may arouse the observer's admiration for the contending forces, also his interest in contest, and may make

⁴² E.g., Arthur Gilbert Bills, *General Experimental Psychology*, 1934, 253-254 (Longmans); cf. 167, above; PA 22 3367.

⁴³ Cf. 197, above.

him grateful for the final victory of the welcome motives. Nevertheless, such will is obviously wasteful. Moreover, it is not always dependable—some fatigue of the higher powers with their welcome motives, or facilitation of the unwelcome ones, may yield an unwelcome result.

The integrated type, in contrast, is most efficient both momentarily and in the long run. As applied, for example, to ethical behavior, the psychologist must agree with C. C. Everett that what we call unintegrated will “shows a lack of freedom and spontaneity in the direction of the right. A man who performs a righteous act from a sense of duty stands much higher than one who does not perform it at all; but the one who performs it because it seems the most natural thing in the world, simply because he wants to, stands still higher.” As Democritus observed, “You can tell the man who rings true from the man who rings false, not by his deeds alone, but also by his desires.” “Of practical wisdom these are the three fruits: to deliberate well, to speak to the point, to do what is right.”⁴⁴

How is such will possible?

Apparently it is possible, and occurs, through the psychology of integration, motivation, reactions, and other topics of earlier pages, including integrated belief and voluntary reaction. Given the requisite physical conditions, food, rest, and so on, some people seem to have a happier alignment of motives, a more fortunate disposition, than others, through nature or nurture or both. Some seem to accomplish the integration through honest thought; and it would appear that many more could accomplish it so. Socrates maintained that “no man ever knowingly chooses the worse of two alternatives”; evidently meaning by “knowingly” the vigorous and thoroughgoing process which we have called integrated ideogenic reaction. The sixteenth-century physician and writer Agrippa noted that any work gains from vigorous thought of what one should do.⁴⁵ Guyau, as often quoted, observed that “he who does not act as he thinks, thinks badly.” According to Homer, Athena said of Ulysses that “what he greatly thought, he nobly dared.”⁴⁶ Moreover, both temperament and thought can use helps. To quote Cooley: “Marcus Aurelius told himself that he was free to think what he chose, but it appears that he realized this freedom by

⁴⁴ Charles Carroll Everett, cited by Walter Goodnow Everett, *Moral Values*, 1918, 304 (Holt); Democritus, “Fragments,” Biels’s Nos. 68, 2, in Charles M. Bakewell, *Sourcebook in Ancient Philosophy*, 1907, 60-62 (Scribner).

⁴⁵ Cf. James J. Walsh, *Psychotherapy*, 1923, 15 (Appleton).

⁴⁶ *Odyssey* (Pope, tr.), II, line 312.

keeping books about him that suggested the kind of thoughts he chose to think."⁴⁷

Morale. Integrated will appears in morale. Largely following Perry,⁴⁸ we observe that morale is drive to carry through. Morale may be passive, to endure hardship; active, to accomplish something; independent, to go on alone; or social, to go on with others. Its roots are physical, in housing, clothing, food, rest, and health; basic-psychological, in instincts, emotions, and such social effects as imitation, emulation, and group sense; creedal, in indoctrinated beliefs and ideologies; and rational, which develops not through indoctrination but through education. Morale whose roots are at once physical, basic-psychological, and rational, with emphasis on the rational, is the highest kind, namely, enlightened courage.

Of the several roots of morale, the physical and the basic-psychological may suffice when the ends are unquestioned; for example, in surviving a flood. The creedal support may be added successfully when the end is questionable and the indoctrinated person can be counted on to carry through well enough without understanding. This happens for ignorant groups in various dogmatic religious, political, military, or other cultish projects. The rational support is necessary for any long-range project whose end is likely to be questioned; necessary both for the project and for the best development of every person who shares in it.

Freedom

Throughout this discussion of action and control, we have sought to explain voluntary reaction, choice, intention, purpose, and will through natural development, inhibition, facilitation, and so on; in other words, through causes, according to the hypothesis of determinism. As applied to human reactions, this means that the strongest motive (or combination of motives) always wins. The strongest motive is not necessarily the most primitive, common, or noticeable motive, but the most effective one—that is wherein it is strongest. It is not necessarily even a characteristic motive: in one person in a given situation, at one time the strongest motive is a momentary impulse, and at another time it is a habit of deliberation; while in another person the strongest motive

⁴⁷ Charles Horton Cooley, *Human Nature and the Social Order*, 1902, 35 (Scribner).

⁴⁸ Ralph Barton Perry, *Educ. Rec.*, 1941, 22:446-460. Cf. also Irving L. Janis, *Air War and Emotional Stress*, 1951 (McGraw-Hill).

is always or nearly always the habit of deliberation, which works toward whatsoever choice represents his total motivation. In any event, reaction follows the strongest motivation at the time.⁴⁹

Determinism vs. fatalism. This is not fatalism. For fatalism, every fated reaction follows the decision of Fate, which means a divine personage or special cosmic force. The Irishman who said, "I wish I knew the day and the place at which I am to die," was speaking as a fatalist. When he was asked why he wished he knew and he replied, "Because on that day I'd be as far from there as possible," he was speaking as either an indeterminist or a determinist. The indeterminist denies causation for his reactions, in so far as he is an indeterminist; he "simply wills" what he does. The fatalist puts his causation into a particular part of the universe. The determinist puts his into all parts of the universe that bear upon the effect in question. Thus the determinist's principle of cause-and-effect, the uniformity of nature, reduces to many causes and their effects, including the individual's own nature, experience, observation, and reflection, his native and acquired motives. Through his acquired motives, the individual may disregard immediate satisfactions, and even his personal safety, because his strongest motivation runs otherwise.

Freedom. Can, then, the "lack of freedom and spontaneity," which we noted of the unintegrated will, imply freedom of any reaction? Was Marcus Aurelius really "free to think what he chose"? Is there, or can there be, any freedom?

Not in the sense of an uncaused, supernatural freedom, the freedom of indeterminism, so far as we know. True, we cannot disprove such freedom; when it comes to a close decision between alternatives, there may be some uncaused freedom that tips the scales yet is too fine to be measured.⁵⁰ Many of us, however, are unable to imagine or conceive such freedom. What is more, we think that to know how things occur is to learn cause-and-effect; and that to assume cause-and-effect often leads investigators to discover it. Thus science is limited to and grows upon the earth of cause-and-effect. Cause-and-effect means the uniformity of nature. This is the assumption of determinism.⁵¹

⁴⁹ Cf. A. C. Ewing, *Monist*, 1934, 44:126-143. Cf. also Paul Crissman, *Sci. Mon.*, 1945, 61:455-464.

⁵⁰ Cf. James, *op. cit.*, 456-458, and elsewhere in his writings.

⁵¹ Cf. 75-77, above.

Nevertheless, there is freedom; freedom which we believe can be increased. It occurs in three universally accepted senses of the term: (1) *lack of external restraint*; (2) *lack of internal conflict*; and (3) *sufficient resources*. Of these, the individual finds freedom from external constraint in a free society, a society organized for the highest development of its members. He gains freedom from conflict through self-understanding, enlightenment, and integration. He enjoys sufficient resources through external, material and social aids, and through whatever wisdom and special abilities he has developed. Thus he achieves what Walter Goodnow Everett called *true freedom of life*.

Such freedom is not license. A man may be a slave not only to outward circumstances, but also to his own impulses, or to weakness and ignorance. As Democritus put it, "An evil and foolish and intemperate and irreligious life should not be called a bad life but, rather, dying long drawn out." Spinoza observed that "a free man thinks of nothing less than death, and his meditation is not upon death but upon life."

True freedom of life involves making one's peace with the inevitable, while enjoying the actual; and the actual includes idealism and working toward the ideal. The truth, which shows what is inevitable, what actual, and what possible, makes men free. The serf has less freedom than the citizen; the unintegrated person, less than the integrated one; and the fool, less than the sage.⁵²

Responsibility

For the determinist, responsibility, like freedom, is real, intelligible, and worth increasing.

Responsibility means more than natural accountability, which we shall call simply accountability. A falling tree, an idiot, or a maniac may be *accountable* for a man's death; but none of these is *responsible*. None is responsible because neither the tree, the idiot, nor the maniac can learn to be guided by actual or prospective punishments, rewards, or interests. Even a person whose every reaction came from uncaused freedom of will, assuming such to be possible, the consistent determinist would not hold responsible. A person might learn all the rewards, punishments, and interests that are available to him; and yet his reactions, deriving from an uncaused freedom, must be unaffected

⁵² Cf. Everett, *op. cit.*, 356, circa; Democritus, *loc. cit.*, No. 160; Spinoza, *Ethics*, IV, lxvii note, V, etc.; John Dewey, *op. cit.*, 303-313; Frank H. Hankins, *J. Philos.*, 1925, 22:617-634; Archie J. Bahm, *Sci. Mon.*, 1946, 63:135-136.

by such things. Indeed, he would be more dangerously unpredictable than any idiot or any maniac, except for a hypothetical maniac who might equal him in mental and physical powers and in uncaused freedom of will.

Successful parents, teachers, preachers, employers, and officials have professed various ideas about human freedom and responsibility; but, in practice, they have punished, rewarded, or otherwise interested their charges, to develop in them reactions acceptable to the mentors' authorities. Every authority, whether despot, clique, public, or trustee, has sought to conserve the life of some if not all persons by holding every person accountable for his own reactions which affect that life. In so far as the authority has recognized responsibility as more than accountability, it has held responsible every person who could learn and be guided by what the authority considered right. Thus practice supports the deterministic interpretation that *responsibility is accountability plus educability*.

This interpretation accords with the growing tendencies to make the punishment fit not so much the crime as the criminal; to make the good citizen's reward, in more than money, fit the individual citizen; and to develop in everyone common though not identical interests, for the good of all.⁵³

Abnormalities

Of course the abnormalities of action and control are bound up with the psychology of the relevant earlier topics, integration, motivation, and the rest, also suggestion, reactions to stress, mental disorders, and other topics of subsequent chapters. Many examples appear, often with some explanation, throughout the book. Some of the abnormalities are organic,⁵⁴ some are psychogenic, and some are both. At this point we shall outline the more important abnormalities, neither diagnostically nor dynamically, but descriptively, as often named. The classification is rather arbitrary, since a number of the abnormalities could be considered under more than one name.

Disordered reflexes and related functions. Basic to action are the reflexes. These and their disorders are more important for neurology

⁵³ Cf. Everett, *op. cit.*, 335-376; Taylor, *J. Soc. Psychol.*, 1945, 22:203-208, or *Bull. Am. Assn. Univ. Professors*, 1946, 32:657-662.

⁵⁴ For examples cf. Joshua Rosett, *The Mechanism of Thought, Imagery, and Hallucination*, 1939, 105-107 (Columbia Univ. Press).

and applied abnormal psychology than for our purpose. Convenient surveys of the reflexes are available in the literature. Closely related are many disorders of alimentation, elimination, respiration, and so on.⁵⁵

The "tonias." Abnormalities of muscle tone or tonus are indicated by several of the usual prefixes⁵⁶ combined with the root, as follows:

Atony or atonia means lack of tonus; the muscle is not merely in a normal resting state, but is "loosed" as in paralysis.

Hypotonia means deficient tonus; the muscle has more tonus than in atony, but less than is normal.

Hypertonia means excessive tension of muscle, as in tetany, a condition in which the muscles are tightly stretched.

The "kinesias." Many of the more detailed abnormalities are classified upon the root -kinesia or -kinesis (which means movement), combined with prefixes.⁵⁶

Akinesia is lack of movement. It may come from paralysis or from some other cause.

Hypokinesia is deficient, slowed or weakened, movement.

Hyperkinesia is the opposite, as in manic excitement.

Parakinesia means abnormal movement, like trying to move the right hand, but moving the foot; or trying to move the right hand smoothly, but moving it irregularly.

Allokinesia means, specifically, moving the opposite member from the intended one. Here there is a cross action like the cross sensation of *allochiria*.⁵⁷

Synkinesia occurs when voluntary movement of one limb moves also the opposite limb. It is an abnormally paired action like the paired sensation of *synchiria*.⁵⁷

Dyskinesia is disorder of movement. Thus it includes the foregoing six terms, especially *parakinesia*. It may be used also to cover *apraxia*, which means loss of a skill without either anesthesia⁵⁶ for the sensory elements or paralysis of the motor elements involved; *ataxia*, incoordination as in locomotor ataxia; *tremors*; *spasms*; *cramps*; *convulsions*; *athetosis*, involuntary rhythmical movements of the fingers and toes;

⁵⁵ E.g., Roy M. Dorcus and G. Wilson Shaffer, *Textbook of Abnormal Psychology*, 1939, 68-73 (Williams and Wilkins); neurological works; Taylor, *Readings*, 698, 707, etc.; Janet's writings, *passim*; etc.

⁵⁶ Cf. the Introduction to Terms, 624, below.

⁵⁷ Cf. 357, above.

the various *choreas*, spasmodic movements;⁵⁸ also *paralyses*, *contractures*, *tics*, and *stereotypies*, which terms we shall consider next; and some further disorders to be mentioned.

Paralyses Janet classified roughly into local, general, and systematic.

Local paralysis is atony of the muscles of a particular area, for example, one hand, or a part of the hand.

General paralysis is of a wider area, at least half of the body. A paralysis of either the left or the right half of the body is called hemiplegia (half-stroke, -blow, or -plague); of the lower half, paraplegia; and of all four quarters, quadriplegia.

Systematic paralysis is paralysis of a system, not of muscles, but of use of those muscles. For example, a patient may be able to hop, skip, jump, dance, and walk on his toes, yet not be able to walk normally; or perhaps he can walk backwards but not forwards.⁵⁹

A curious paralysis, or semiparalysis, is *Lasègue's syndrome*. This is loss of movement without the help of sight.⁵⁹ Bell's sign, a diagnostic test in which the patient cannot move his hand if it is placed behind his back, is a special case of this syndrome.

An eight-year-old girl was unable to start walking without first bending over and looking at her feet. To stop walking, she had to look at her feet again.

Contractures are likewise local, general, and systematic.⁵⁹

In the neurological ward of a military hospital, we see a man whose right fist is always closed; a man who is always bent over to the left; and one who has certain muscles of his left arm, right leg, neck, and face contracted in a complicated pattern.

Tics are abnormally automatic, recurrent movements of a particular muscle or set of muscles. Thus, one patient is always winking his left eye, even upon the most solemn occasions; another grunts; a third turns his head to the left every few seconds; and so on.⁶⁰ The prototype of tics is the involuntary twitch of the eyelid, or of some other muscle, which perhaps everyone has experienced at some time or other.

⁵⁸ Cf. Dorcus and Shaffer, *op. cit.*, 58-67; Carney Landis and M. Marjorie Bolles, *Textbook of Abnormal Psychology*, 1946, 317-319 (Macmillan); and works in neurology.

⁵⁹ Cf. Taylor, *Readings*, 367-383; Dorcus and Shaffer, *loc. cit.*

⁶⁰ Cf. Taylor, *Readings*, 383-394; Dorcus and Shaffer, *op. cit.*, 62; PA 2 2529, 3217, etc.; Ives Hendrick, *Facts and Theories of Psychoanalysis*, 1934, 10 (Knopf); John Levy and Ruth Munroe, *The Happy Family*, 1938, 33-34 (Knopf); Margaret Mahler (ed.), *Tics in Children*, 1945 (Grune); Avery D. Weisman, *Arch. Neurol and Psychiat.*, 1952, 68:444-459.

Stereotypies are, in effect, large or highly developed tics or contractures; they are abnormally automatic, recurrent or persistent sayings, movements, or bodily attitudes.

A woman who was not a patient talked thus: "I had an interesting afternoon. I walked separated from all the way down Main Street, and I looked into every separated from shop window. Finally I saw what I wanted, and I went in and bought it separated from. Don't you want to see it?"

A hospital patient constantly went through the motions of mending shoes.

Another patient, day after day, kept the pose of an angel.

Disorders of will. *Abulia* (or *aboulia*) is lack of will to do or decide. It is like any weary and depressed person's lack of initiative and decision, only more serious and prolonged. The term is not applied to mystical absorption, sheer negativism, or other preoccupation of will.

A patient who was offered a glass of water on a tray took 12 minutes to put out her hand and take the glass.

Such patients inspired Paget's aphorism: "The patient says that she cannot; the nurse says that she will not; the truth is that she cannot will."

Perseveration is abnormal continuation of a reaction as by psychological momentum; the individual is unable to initiate some other reaction which would inhibit this one. Thus perseveration would seem to reflect *abulia* when some reaction has gotten started.

A patient was asked to sweep up a small pile of dirt and take it out of the room. He did so, then returned and swept the same floor, over and over, for a couple of hours, apparently unable to stop.⁶¹

Dorcus and Shaffer reported various experimental tests of perseveration.⁶²

Catalepsy (down-seizure), as the term is used, includes both *waxy flexibility* and *bodily rigidity*, and is also a synonym for cataplexy, to which we shall return in a moment.

In *waxy flexibility*, the patient remains in any position in which he is put, bending over, standing on one foot, one arm up, as though he were made of wax.

⁶¹ Communicated by Milton H. Erickson.

⁶² Op. cit., 104-105.

The rigid cataleptic seems more self-determined. He has some general or systematic contracture which he maintains, so long as he is not asleep or otherwise specially stupefied; and, if one forces him out of his peculiar pose, he pulls back into it when one lets him go.⁶³

Either waxy flexibility or rigidity may be general.

Cataplexy (down-stroke) is a deathlike rigidity which comes from fright, shock, or other extraordinary excitation.

Echopraxia, or echopraxy, is more or less involuntary imitation of whatever action is presented to the subject. Thus, the doctor claps his hands, and the patient claps his; the doctor stands on one foot, and the patient does likewise, even though he tries not to.

Negativism is either not doing whatever is suggested, or doing the opposite. The former is called passive negativism, and the latter, active negativism.

"Good morning," says the doctor, and offers his hand to a negativistic patient. The patient says nothing and does nothing. The doctor asks, "What is your name?," but receives no reply.

A psychiatrist managed one patient perfectly every morning for some days by going to the patient's bedside and saying: "Don't get up." The patient got up. "Don't go and wash." He did. "Don't get dressed." He dressed. "Don't go to breakfast." "Don't eat."⁶⁴

Impulsiveness seems more spontaneous. Actually, the patient is the victim of his own impulses, as he lacks integration. He does or starts this, that, and the other, quite unchecked by thoughts of his limitations, consistency, or consequences. Such impulsiveness is most marked in mania, in the sense of insane excitement.

Psychomotor retardation represents a general slowing up of the patient's mental and muscular processes.

Psychomotor excitement is the opposite, as appears in the synonym *pressure of activity*. It is characteristic of mania.

Obsessive actions include various personal rituals like touching posts, stepping over cracks, or handwashing, which the subject cannot control; also kleptomania, pyromania, and the like.⁶⁵

Compulsive actions are obsessive actions which are unwelcome to the subject.

⁶³ Cf. Landis and Bolles, *op. cit.*, 119.

⁶⁴ Communicated by John A. Houston.

⁶⁵ For examples, cf. James, *op. cit.*, 439-441.

Mende described the case of a child's nurse. She was "a gentle, peaceable woman as a rule," and was devoted to the child. Nevertheless, when her mistress was away and she saw a knife lying on the table, she felt compelled to seize the knife and cut the child's throat. Instead, however, "she ran into the kitchen with the knife, threw it away, and begged the cook to keep near her because she had 'wicked thoughts.' The cook refused and left the house to fetch her mistress. Thereupon the urge to murder the child returned and probably would have been carried out had not the mistress come back in the nick of time. Even during the night, when the nurse was sleeping in the same room with her mistress, she felt the murderous urge so strongly that she cried aloud to awaken her. Later on she admitted with tears what had passed in her mind and what torture the impulses had been to her."⁶⁶

Knop told of a landowner who set fire to his own homestead, though the act was repugnant to him.⁶⁶

Dissociated actions may be grouped loosely as either generally or specially dissociated or both. Generally dissociated actions would seem to include many hypo- and hyperkinesias, ataxias, tremors, spasms, cramps, convulsions, choreas, and general contractures. Specially dissociated actions appear in many para-, allo-, and synkinesias, apraxias, local and systematic contractures, tics, and stereotypies, also in perseveration, catalepsy, echopraxia, negativism, impulsiveness, obsessive actions, automatic writing, automatic (similarly coconscious) speech, and the acts of multiple personalities. Many of these specially dissociated actions, of course, are based partly on general dissociation.⁶⁷ On the other hand, many aberrations like those ascribed to general or special dissociation or both seem to involve conflictful inhibition.

Other abnormalities of action and control include the abnormal redintegrations of affective reactions, the imperceptions, and the aberrations of thought, also disorders of speech and writing, which are considered at various points in the book.

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Intention and purpose: Margaret Floy Washburn, *Movement and Mental Imagery*, 1916, 151-173 (Houghton Mifflin); PA 5 146, 1283, 6 166.

⁶⁶ Adapted from Störing's citation in his *Mental Pathology*, etc., 1907, 286 (Sonnen-schein, London).

⁶⁷ Cf. 218, above.

17 | Suggestion

"Oh!" said the youth, "I would give worlds to shudder, but no one can teach me."

Friedrich Grimm

Often the confidence of the patient in his physician does more for the cure of his disease than all the physician's remedies.

Avicenna, after ancient Greeks

Here we shall take up imitation, its varieties, and their relation to suggestion; sympathy, likewise in relation to suggestion; and suggestion itself, its varieties, how it works, and what it does.

Imitation

Definition. *Imitation is reaction to and like other reaction as perceived or thought.* When one animal drinks, then another, the second animal is not imitating unless he responds not merely to the water but to the first animal's response, and thereby is moved to do likewise. Commonly, an animal or a person imitates what he perceives, a pattern present to his senses. Often, however, a person, and sometimes perhaps a parrot or other animal, imitates what he remembers or imagines; for example, a person finds himself imitating today a peculiar laugh which impressed him yesterday, or he imitates his own notion (which is a reaction) of how so-and-so probably laughs, or of how he thinks he himself ought to laugh. Thus, under favorable conditions, one may imitate a reaction which is either perceived or thought.

Varieties. It should be noted that the reaction which one follows imitatively may occur either in another individual or in oneself; a person may imitate another's yawn, or he may be so impressed by his own yawn that he yawns again. Reaction to and like *another's* reaction is called *allo-imitation*; and reaction to and like *one's own* reaction, *self-imitation*.

Whether the imitation is of another's reaction or of one's own, it may be either involuntary or voluntary, or somewhere in between. *Involuntary* imitation is *unreflective* reaction, and *voluntary* imitation is *deliberate* reaction, to and like other reaction.

A young hemiplegic could not open his mouth voluntarily. To enable him to eat, the physician sat at the foot of the bed and, at intervals, yawned deliberately; the patient, upon seeing each yawn, opened his mouth automatically; and so the nurse fed him, bite by bite.¹

Voluntary imitation seems understandable in the light of the preceding chapter. Involuntary imitation we shall consider soon as an elementary form of suggestion.

Sympathy

Though sympathy has much in common with imitation, in psychology the term is limited to an *affective* reaction to and like that of another person, or on behalf of another person, not oneself. What might be called self-sympathy reduces to self-pity, hypochondria, valetudinarianism, martyrdom, dramatization, egotism, or insight; although each of these is likely to involve much more than the basic mechanism of sympathy.

Definition and varieties. Sympathy may be defined most conveniently not in general but in its two principal varieties, between which there are, however, many intermediate instances. These two varieties are imitative sympathy and reflective sympathy.

Imitative sympathy is reaction to and like another's affective reaction as perceived or thought. Examples are weeping because one sees another weeping, or feeling cheerful because one sees another cheerful; not from altruism or reflection but from sheer, affective imitation. Perhaps Spinoza was thinking of imitative sympathy when he wrote: "If we conceive that anyone loves, desires, or hates anything which we

¹ Cf. S. A. Kinnier Wilson, *Modern Problems in Neurology*, 1928, 263-264 (E. Arnold).

ourselves love, desire, or hate, we shall thereupon regard the thing in question with more steadfast love, etc. On the contrary, if we think that anyone shrinks from something that we love, we shall undergo vacillation of soul."²

Reflective sympathy is affective reaction to another's situation as understood. Here the emphasis is not on how the other person is reacting but upon how he would react affectively if he understood his situation as the sympathetic observer understands it. To weep, unreflectively, because a child weeps, or to be happy likewise because the child is happy, is imitative sympathy; but to be saddened, though the child is playing happily, because one knows that the child is an orphan, or to be happy on behalf of a crying child because the crying shows robust health, is reflective sympathy.

Obviously, reflective sympathy is a much higher reaction than imitative sympathy and seems understandable in terms of thought and ideogenic reaction, as indicated in the foregoing two chapters. Imitative sympathy, on the other hand, is a form of suggestion.

Suggestion

Of the various meanings of suggestion, in this section we shall disregard casual meanings like: "One suggestion is that we combine the two offices." "He suggests that we follow the river." "The haze suggests a fire, among other possibilities." We shall consider the psychological meanings of the term.

Definitions. In the present context, suggestion means three things:

(1) *Unreflective reaction to a symbol as perceived or thought.* Here "symbol" means anything with meaning, any substitute stimulus or redintegrator. Thus, judicious or highly reasoned reaction is not suggestion because such reaction is not unreflective. A reflex kick aroused when one's knee is tapped for the first time is not suggestion because the kick is a reaction to a native stimulus, not to a symbol, something with meaning. The next time the knee is tapped with the same object, or after it has been so tapped several times, the object may have become a symbol, and then the kick may occur by suggestion through merely seeing the object coming, or perhaps thinking vividly of that symbol. A yawn touched off by another's yawn, or by the word "sleepy," illustrates suggestion; for the other's yawn and the word are symbols

² *Ethics*, III, xxxi.

which, to the person who perceives or even thinks of them, mean unreflective yawning.

(2) *The symbol thus effective.* The first yawn, or the word "sleepy," when it brings about suggestion, we call a suggestion: "I'll give him a suggestion to make him yawn; I'll write 'sleepy' on the blackboard."

(3) *The induction of the reaction.* "When I induced suggestion (1), unreflective reaction to a symbol, by presenting a suggestion (2), the symbol 'sleepy,' I illustrated suggestion (3) as a process of administration or induction."

Of the three senses, ordinarily, context will show which is intended.

Varieties. Each of the three senses of suggestion has several varieties.

Suggestion (1), unreflective reaction to a symbol, may be abnormal or normal, and accordant or contrary.

Abnormal suggestion, as follows from Chapters 1 and 4, occurs in a mental state which is relatively far from ideal integration. Examples occur in almost anyone who is weak, tired, sleepy, confused, emotional, hypnotized, or somewhat drugged or intoxicated; such a person may take another's preoccupation to mean indifference, a lifted eyebrow to mean a threat, or a glittering promise to mean a fortune. Examples occur also in definitely disordered minds. Like abnormal reintegration, which it essentially is, abnormal suggestion is not really appropriate to the subject's present situation. From one point of view, it is appropriate; to dream of an iceberg when feeling a cold draft after a day on the water, or to hallucinate a black dog when the hypnotist says there is one present, is a natural reaction, under the circumstances; but it is not appropriate as would be a perception that this is a cold draft, or that the hypnotist is making an interesting test.³

Normal suggestion occurs with normal integration, and is appropriate to the present situation. A pedestrian's nod touches off a nod in turn; a traffic signal guides the driver; a memorandum prompts an errand; all quite unreflectively, even while one is preoccupied with a larger problem, yet, in total effect, integratedly.

Accordant suggestion, as the name implies, is faithful to the given symbol; a yawn brings on a yawn; the word "sleepy" makes the subject sleepy; and the hypnotist's statement that a black dog is present makes

³ Some authors limit suggestion, in the sense of a reaction, to abnormal suggestion. Thus Janet called suggestion an incomplete action, one which does not involve the whole individual (*Psychological Healing*, 1925, 1:230, Macmillan).

the subject hallucinate one as present. This is what we usually mean by suggestion. Consequently, the adjective is unnecessary except when we need to contrast accordant with contrary suggestion.

Contrary suggestion unreflectively opposes the given symbol. In contrary suggestion, a yawn, or the word "sleepy," arouses wakefulness; and the hypnotist's injunction to behold a black dog makes the subject hallucinate a white dog, or some more different object, or cease hallucinating. Contrary suggestion may occur even before a symbol is presented formally; as in the three-year-old boy who called on his grandmother every day and greeted her with the words, "I won't!"⁴ Thus contrary suggestion embodies active negativism and may be used, in some cases, to control another's behavior.

One little girl wanted another one to play croquet with her; but she knew that the other preferred see-saw. Since she knew also that this other child was negativistic, she said: "Let's see-saw!" The other child objected, and they played croquet.

In the preceding chapter, we saw how a physician got a negativistic patient up and about in the morning through contrary suggestion.⁵

The mechanism of contrary suggestion should become clear when we take up that of suggestion in general.

Suggestion (2), the symbol used, occurs in whatever varieties of symbols one may choose to recognize—*material-reminder*, *gestural*, *verbal*, *individual*, *conventional*, and so on.

Finally, suggestion (3), the administration of suggestion, may be divided into heterosuggestion and autosuggestion, and again into direct and indirect suggestion.

Heterosuggestion, like allo-imitation, involves two persons, one who gives the suggestion, and another who is affected by it. Usually, when neither "hetero-" nor "auto-" is specified, we mean heterosuggestion.

Autosuggestion, like self-imitation, originates directly and terminates in one and the same person. Autosuggestion can do much, if not all, that heterosuggestion can do.

Direct suggestion is a frontal approach; it presents the effective symbol to the focus, the most active center, of the subject's awareness.

"Look at me, and listen to me. Very good. Now: Go to sleep."

Direct suggestion appears also in advertising; for example: "Buy a Franklin Runabout from the Smithtown Franklin Agency."

⁴ Cf. Martha May Reynolds, *Negativism of Pre-School Children: An Observational and Experimental Study*, 1928, 8, 118, 122 (Teachers College, New York).

⁵ Cf. 462, above.

Indirect suggestion affects the subject through "the back of his mind." It uses associated symbols whose marginal meanings take the place of the essential symbol and introduces the essential symbol, if at all, into the recipient's marginal awareness.

"That's a lovely view from your window. How quiet, how peaceful, everything is! Each plant has its own place, where it simply rests and grows, without a thought. *That* is pure repose!"

In advertising: "All the Franklin Runabouts that came last month are sold. We expect twenty more tomorrow. Already, five of the new lot have been ordered by forethoughtful customers."

Moreover, suggestion either (1) or (3) may be *waking*, when applied to one who is awake; *hypnoidal*, to one who is perhaps partly hypnotized; *hypnotic*, hypnotized; *hypnagogic*, between waking and normal sleeping; or *narcotic*, narcotized. *Posthypnotic* suggestion, as mentioned before, is suggestion given in hypnosis to be carried out later.

Evidently, a number of the varieties of suggestion shade into and may be combined with one another. Thus, there is no clear line between normal and abnormal suggestion, or between direct and indirect suggestion; and gestural and verbal, hetero- and auto-, and hypnotic and narcotic suggestion may work together.

Mechanism and Limits of Suggestion

The various ancient and modern cults of suggestion, whether or not they recognized it as such, have made too much of it, and at times too little, because they did not understand its limits. They did not understand its limits because they did not understand its mechanism, how it works. The explanation which follows is neither essentially new nor wholly demonstrated, but it seems to fit what we know and to make suggestion intelligible.⁶ In view of our previous discussions of redintegration, illusion, hallucination, ideogenic reaction, and negativism, this explanation can be fairly brief.

Suggestion depends directly upon five factors, namely, receptors, connectors, connections, readiness, and effectors. Let us see how these factors apply to a suggested yawn and, by implication at least, to further examples.

⁶ Cf. Edmund Gurney's discussion of Heidenhain's view, *Proc. Soc. Psychical Res.*, 1884, 2:279; G. Gilles de la Tourette, *Arch. de neurol.*, 1885, 19; Stevenson Smith and Edwin R. Guthrie, *General Psychology in Terms of Behavior*, 1921, 131-133 (Appleton); Floyd Henry Allport, *Social Psychology*, 1924, 178-186, 240 (Houghton Mifflin); Livingston Welch, *J. Abn. Psychol.*, 1947, 42:359-364; and, for a demonstration for the classroom, W. S. Taylor, *Psychol. Rev.*, 1928, 35:167-171.

Receptors. If a person is to yawn by suggestion, his yawn must be touched off by a yawn, a gesture, a word, or other cue, which he can see, hear, or feel. If he cannot sense the given cue now, he must think it; which means that he must have sensed it, or its components, in the past. Thus all suggestion depends upon and is limited by the subject's receptors.

An exception would be any suggestion through extrasensory perception or telepathy. To many students, however, such supernatural impression seems unproved.

Connectors. If the original yawn is presented only to the subject's eyes, and he has no intact neural circuit from his eyes to his brain centers and out to his mouth, he does not yawn, for he lacks the necessary connectors.

Cultists overlook this factor when they apply "mental influence" to persons whose relevant neural structures are seriously damaged or undeveloped.

Connections. A subject may see the original yawn and have intact connectors between his eyes and his mouth; nevertheless, he is not moved to yawn if he has not seen the pattern before and has not linked it somehow with his own yawning. Likewise, he is not moved to yawn by the word "yawn," or the word "sleepy," or the notion of a vegetative life, or by any other cue, if the given cue has not been connected previously with his own yawning. For suggestion to work, the connectors must contain actual connections, which have been learned, between the presented cue and the desired response; connections which make that cue a symbol for that response.

Complicated forms of suggestion depend similarly upon connections. A hypnotized subject who has never danced, but who mimics a new dance which is exhibited to him, does so no farther than he has learned—in games, climbing, jumping—to make the component movements and has linked them with the corresponding parts of the pattern which he sees. A subject who is told that he is a great actor playing the part of Hamlet cannot play that part beyond the limits of his conscious and subconscious connections, his memories and skills; though these limits may be surprisingly broad. A gloomy person who is made cheerful when placed among cheerful companions, and who even takes on their philosophy of life by suggestion, is so modifiable no further than the gestures, words, and other impressions which come to him from the

cheerful people are already linked, in his experience, with cheerful component reactions.

Because suggestion is limited thus to previously established connections, it is a mistake to try to exert "mental influence" through, for example, words which fail to mean what they are supposed to mean to the subject. Words mean only those reactions, general and specific, which the subject has available and has connected with the words.

Readiness. Given the right receptors, connectors, and connections, no yawn or other cue will make the subject yawn if he is more ready to respond in some different way, or if he is set against responding at all; in other words, if he lacks readiness to yawn.

Such readiness is favored by three conditions:

(1) *Nonexistence of contrary reactions.* If the subject does not know how to do anything which interferes with yawning, he is more likely to follow a suggestion that he yawn. This is the suggestibility of ignorance, ignorance not of the given reaction but of what might inhibit it.

(2) *Inhibition or dissociation of contrary reactions.* A small child who sees some poison ivy and wants to taste it, but who follows a suggestion to try some black birch instead, does so as his former set is inhibited. A partly anesthetized patient who, when asked to relax, fights the doctor, may be anesthetized further until the untoward impulse is dissociated. An intelligent, self-directing person who knows that it is summertime in his neighborhood may "let himself go" as a hypnotic subject until, when the hypnotizer tells him that there is snow all about him, he thinks that he sees and feels snow; and he shivers. Apparently his critical reactions about snow have been inhibited or dissociated.

Either conflictful inhibition or dissociation of the contrary reaction permits, in our sense of the term, abnormal suggestion. Central inhibition of the contrary reaction permits normal suggestion. Whether normal or abnormal, suggestion cannot occur until every contrary reaction is sufficiently inhibited or dissociated.

In *Tom Jones*, Fielding wrote of the parson's lecture against anger: "This lecture he enriched with many valuable quotations from the antients, particularly from Seneca; who hath indeed so well handled this passion, that none but a very angry man can read him without great pleasure and profit."

Meredith explained why an egoist is not a sympathetic person. "The Egoist," he said, "is the Son of himself. He is likewise the Father. The

son loves the father, and the father the son. They would not injure you, but they cannot consent to see one another suffer or crave in vain. Absorbed in their great devotion, they do not think of you. They are beautiful."⁷

Prince gave many examples of subconscious resistance to suggestion, and of overcoming that resistance.⁸

One investigator found that some narcosis made his suggestible patients more suggestible, but not his nonsuggestible ones.⁹

(3) *Facilitation of the given pattern.* When the subject is so free from contrary reactions that he can yawn by suggestion, he yawns the more widely and more often as quiet, darkness, a comfortable position, the clock striking a late hour, the sight of a sleeping cat, and other associated excitations help him yawn. Any suggestion is helped as the subject is made more ready by further excitations which facilitate the given pattern.

Effectors. Finally, no matter how good the subject's receptors, connectors, connections, and readiness, he cannot yawn if he has no jaw muscles. The hypnotized subject who is told to jump over a house fails to do so because his effectors are not equal to such a jump. A suggestion calculated to make a subject's mouth water is futile if he lacks salivary glands. Every suggestion depends upon and is limited by the subject's effectors.

This point may seem obvious; but it is overlooked by the cultist who tries to set a broken bone, either in himself or in another, through pure thought. Muscles and glands can be and often are aroused ideogenically, as we said in the preceding chapter; but no limb contains effectors which can set a broken bone in that same limb, except perhaps in very unusual circumstances.

Application to contrary suggestion. Even contrary suggestion becomes understandable on the foregoing scheme. Contrary suggestion, we showed, is unreflective reaction to, but against, a given symbol; for example, when one says to a negativistic patient, "Open your mouth," he closes it tight. Apparently, however, this result depends upon the same five factors, including connections and a particular readiness.

⁷ Abstracted from *The Egoist*, 1894, 383 (Chapman).

⁸ E.g., *The Unconscious*, 1914 or 1921, 475-480 (Macmillan); or Taylor, *Readings*, 266-268. Cf. also Milton H. Erickson, *J. Gen. Psychol.*, 1938, 19:136, 138.

⁹ H. J. Eysenck, *Psychol. Bull.*, 1948, 45:163.

Everyone learns words and other cues in relation not only to what they mean directly, but also to their opposites. Thus we come to associate black with white, large with small, open with close, and so on. Consequently, a child who has become rebellious in order to develop independence, or a patient who has become rebellious to protect or establish himself, has developed a set which, whenever a symbol seems imposed upon him, carries him automatically from the expected reaction to an opposed one.

If a child finds that such contrary suggestion gets him what he wants, or that it is a way to punish a nagging parent or guardian, he tends to persist in it, and return to it whenever he feels thwarted.¹⁰

These same factors, receptors, connectors, connections, readiness, and effectors, account not only for suggestion but for all communication, including rational persuasion, and every sort of reaction. The several factors, however, come out clearly in suggestion as they make it intelligible.

Techniques of Suggestion

The same five factors appear to explain the more or less familiar "techniques of suggestion." After the foregoing account of the factors, however, there follows a mere outline of techniques.

Many a one of these shades into or overlaps at least one of the others. They could, therefore, be presented under somewhat different names, and as a shorter or longer list.

In application, most of the techniques can be used to reinforce one another.

Confidence is important in suggestion. Ordinarily, the successful suggestor has confidence in himself, and he develops confidence in him in the subject. He does not have to believe that his suggestion will work; but he must believe that it is worth trying. Occasionally, he may seem not confident in order to interest his subject and gain his confidence later; or he may make the subject not confident on one point to keep him from questioning something else. In general, however, any lack of confidence tends to spread and disturb suggestibility.

Avoidance of antagonism is usually essential. In some cases, antagonism to the suggestor can be aroused and diverted to help the sug-

¹⁰ Cf. Lee Edward Travis, *J. Abn. Psychol.*, 1924, 18:364-365, or Taylor, *Readings*, 509-510.

gestion, or to check some opposed reaction; but such antagonism is liable to resist direction and to reduce suggestibility.

Avoidance of effort, here meaning the conflictful kind recognized in the preceding chapter, is important. Effort in the suggestor communicates itself to the subject. Effort in the subject (for example, *trying* to go to sleep when told to do so) includes reactions which work against the suggestion. In special instances, effort may help to block contrary patterns; but, for finally effective suggestion, the effort should be eliminated, and this is not always easy.

Relaxation, both in the suggestor and in the subject, tends to prevent antagonism and effort and to clear the way for suggestion. The relaxation, however, must not be so complete that it nullifies the suggestor's approach or the subject's responsiveness.

Enlisting habit, for example, telling the subject to go to sleep at a place or time at which he often has gone to sleep, is obviously helpful.

Credibility must not be exceeded; if the subject is told more than he can believe, he becomes antagonistic and so less suggestible.

Unless a subject with a nervous headache is highly suggestible, the suggestor does not say, "Your headache is gone." He says: "You are becoming more and more comfortable. You mind things less, and you feel more confident. You mind your headache less; and, as you become more comfortable and more confident, your head feels better, and still better, and still better, until it is wholly well."

True, many a subject who believes he cannot be hypnotized is surprised to find that he can be hypnotized and can be made to see and talk with people who he had said could not possibly be present.¹¹ This seems to mean, however, that credibility can be more or less subconscious, and that it changes as the subject's state changes.

Concentration is important, as a rule. For the resistant subject there is indirect suggestion, in some cases even hypnosis while the subject is concentrating upon something else; and there is suggestion while the subject is making his mind "a blank." Nevertheless, the suggestion itself

¹¹ Cf. Wesley R. Wells, *J. Gen. Psychol.*, 1946, 35:100ff.; though Wells opposes our implications that credibility means expectancy, and that hypnosis represents suggestion.

is helped in so far as the subject can concentrate upon it and nothing else.

Clarity is essential. The subject who does not understand what he is supposed to do cannot do it, unless he perceives the cue subconsciously, or responds to it automatically. The suggestor may confuse him deliberately to check contrary reactions; but the desired pattern must impress him somehow, and, other things equal, the more clearly the better.

Use of physiological factors appears in examples like these:

"First, please stand up and close your eyes. Good. Now you notice that you begin to sway; and you sway more and more." If the subject does not realize that some swaying is natural physiologically, and that it increases when the visual points of reference are obscured, he thinks that all his swaying comes from suggestion. Thereby he is impressed and becomes more suggestible.

"Now please sit back in this comfortable chair and relax. Relax every muscle; relax completely; just let everything go. As you relax, you feel a little tingling throughout your limbs; a comfortable tingling." Some such tingling occurs physiologically and impresses the unsuspecting subject.

"Fold your hands tightly, and let them stay so. Now they are getting numb." The pressure on the nerves and blood vessels causes some numbness, and the suggestor makes the most of this fact.

Strong stimulation favors concentration and clarity, and therewith suggestion, so long as the stimulation does not arouse anxiety or other disturbing reactions.

Patterned stimulation—design, rhythm, rhyme, melody—makes notably for concentration and clarity.

Repetition is helpful, so long as the subject's interest is held, or the repetition shapes clearly the desired response. (For hypnotic suggestion, Kronfeld recommended a minute or two for reflection between repetitions.)¹²

Monotony, of sound, illumination, temperature, etc., within some limits, favors relaxation and concentration and so suggestion.

¹² Cf. H. L. Hollingworth, *The Psychology of the Audience*, 1935, 143-144 (American Book); Arthur Kronfeld, *Hypnose und Suggestion*, 1924 (Ullstein, Berlin).

Exploiting ignorance, emphasizing ideas which the subject does not know how to oppose, is a common technique. It ought not to be abused.

Utilizing disintegration means playing up patterns which the subject is too disintegrated to oppose. Perhaps he is conflictfully inhibited or is dissociated by fatigue, sleepiness, confusion, emotion, hypnosis, post-hypnotic amnesia, drugging, or intoxication.

As Edward Alsworth Ross observed, "The usually recommended regimen for hearing voices, experiencing ecstatic states, and 'seeing God' is fasting. There was an ancient saying, 'The stuffed prophet shall not see or know secret things.' The Indian boy about the time of puberty fasts till he is vouchsafed a vision of his 'Manitou.' In the earlier days the negro 'seekers' fasted in order to experience 'conversion.' Savage peoples employ fasting, solitude, and physical exhaustion induced by watching, dancing, whirling, shouting, or flagellation, to bring on abnormal states in which suggestibility is extreme."¹³

Enlisting submissiveness is helpful in that submissiveness checks antagonism and effort and favors relaxation, concentration, even some disintegration, and the more passive kinds of response. Submissiveness tends to increase if the subject takes a submissive posture, or if his movements are restricted, as in a crowd listening to a demagog; provided that the posture or restriction does not annoy him.

Use of prestige occurs when the suggester's knowledge, skill, and reputation seem to the subject so admirable that he is glad to receive suggestions from such a person. Devices for establishing prestige include all the arts of suggestion and education.

One of these, we have said, is exploiting ignorance. Rush observed that many a remedy has been effective so long as people did not know what was in it.¹⁴

Another is appeal to interest, perhaps combined with ignorance, which makes important the new or most modern. Forel explained thus the good effects of many new drugs and other treatments as long as they are new.¹⁵

Herman H. Young made it a rule to phrase every suggestion in such a way that the statement could never prove false. Thus, instead of

¹³ E. A. Ross, *Social Psychology*, 1908, 21 (Macmillan).

¹⁴ Benjamin Rush, *Medical Inquiries and Observations*, 1805, 1:29.

¹⁵ Cf. August Forel, *Hypnotism: Or Suggestion and Psychotherapy*, etc. (Armit, tr.), 1907, 63 (Rebman).

telling the sufferer from a nervous headache that the headache is gone, or that it will be gone in the morning, Young would tell him that the headache can disappear, and that the sooner he realizes that he does not need to have it, the sooner it will disappear.¹⁶

LeCron and Bordeaux pointed out that in hypnotherapy (of which suggestion is only a part) the practitioner's personal appearance and his office must be dignified. He should not make a "house call" on his client, but should have the client come to him, not at his house but at his office.¹⁷

Distraction, when artfully used, can divert the subject from possible contrary reactions while the desired reaction is being aroused.¹⁸

A tired child who wants to play with other children in the yard may be diverted by a "bedtime story" until he forgets about the other children and follows a suggestion that he go to sleep.

An adult who wishes to sleep, but whose thoughts keep him awake, may be diverted from those thoughts perhaps by listening to a watch or to the sound of his own breathing, until he falls asleep.

In some persons, it seems that automatic writing can be induced most easily when they are "thinking of nothing," but in other persons, when they are "lost" in a story or other absorbing thought. In the latter group, however, the story or other thought does not guide the writing but serves as a distraction to release writing on a different topic.

This does not mean that distractibility and suggestibility are synonymous. Griffith W. Williams found that a group of manic patients, as compared with some other groups, were much more distractible in general than responsive to verbal suggestions.¹⁹

Indirect suggestion was presented already in this chapter as a way to get around some contrary reactions.

Often one can approach a resistant subject through indirect suggestion and gradually work toward direct suggestion. A classic example is Mark Antony's arousal of the Roman populace against the "honorable men" who killed Caesar.

Positive suggestion is usually better than negative suggestion: "Go to sleep" is more effective than "Don't stay awake," since the negative

¹⁶ Personally communicated.

¹⁷ Leslie M. LeCron and Jean Bordeaux, *Hypnotism Today*, 1947, 92 (Grune).

¹⁸ Cf. Boris Sidis, *The Psychology of Suggestion*, 1898, 46 (Appleton).

¹⁹ J. Gen. Psychol., 1932, 7:309.

form contains its opposite suggestion. This holds even for ordinary instructions.²⁰ Certain negativistic subjects provide exceptions to this rule.

Practice in accepting suggestions helps the subject to accept further suggestions.

This is true notably of hypnotism.²¹

One investigator hypnotized a subject by getting him to look intently at the investigator while the latter talked to him quietly and counted from one to ten. Later, the same subject was crossing out single-place numbers in a laboratory experiment. Upon meeting the series one to ten, he fell into hypnosis.²²

Enlisting some response, even getting the subject to sit, or to lay a book on the table, as asked, may be useful. Through participation, the subject becomes increasingly suggestible, so long as no contrary motive is aroused.

Appeal to interest is embodied in the suggestion to a person who wants to get well that he will go to sleep and that his sleep will make him better.

It is said that a prince who lived about 1030 A.D. "suffered from the delusion that he was a cow. Every day he would low like a cow, crying, 'Kill me so that a good stew may be made of my flesh.' Finally he would eat nothing. Avicenna was called in. First of all he sent a message to the patient bidding him be of good cheer because the butcher was coming to slaughter him, whereat the sick man rejoiced. Some time afterwards Avicenna, holding a knife in his hand, entered the sickroom saying 'Where is this cow that I may kill it?' The patient lowed like a cow to indicate where he was. By Avicenna's orders he was laid on the ground, bound hand and foot. Avicenna felt him all over and said, 'He is too lean, and not ready to be killed; he must be fattened.' The patient then took food eagerly, gradually gained strength, got rid of his delusion, and was completely cured."²³

²⁰ Cf. Herbert Sidney Langfeld, *Psychol. Rev.*, 1913, 20:459-478.

²¹ Cf. Arthur Jenness, *J. Exp. Psychol.*, 1933, 16:55-82; Wesley R. Wells, *J. Abn. Psychol.*, 1946, 41:145-153.

²² Cf. Roy M. Dorcus and G. Wilson Shaffer, *Textbook of Abnormal Psychology*, 1939, 136 (Williams and Wilkins).

²³ Adapted from E. G. Brown, *Arabian Medicine*, as quoted in J. R. Whitwell, *Historical Notes on Psychiatry*, 1937, 96-97 (Lewis). Cf. also Whitwell, 148-149.

Use of associations appears when the suggester, to induce a dry mouth, mentions the time his subject was nearly run over; or, to lock the subject's folded hands, he refers to occasions when the hands were so cold that they would not move.

This and other techniques previously mentioned are combined in Baudouin's "Law of Auxiliary Emotions": "When an idea is enveloped in a powerful emotion, there is more likelihood that this idea will be suggestively realized."²⁴

Giving reasons develops confidence, credibility, clarity, and other factors that have been outlined.

"Your hands have been folded tight so long that they should be numb." "You will dislike alcoholic drinks because you know that they harm you."

Too much reasoning, however, may integrate the subject to the point where suggestion develops into persuasion or education.

Effects of Suggestion

Though many striking effects have been produced through hetero-suggested hypnosis, there is good evidence that either hetero- or auto-suggestion, whether waking, hypnoidal, hypnotic, hypnagogic, sleeping, or narcotic, can produce similar effects. Since, too, the different varieties of suggestion are not sharply separable from one another, in the following two sections we shall consider effects without always distinguishing the varieties of suggestion.

The material. Earlier chapters mentioned various conditioned or associated autonomic reflexes, blood reactions, affective reactions, sensory reactions, thought processes, skeletal-muscular responses, and mixed reactions, which were reintegrated by their several learned cues. The last preceding chapter contained examples of voluntary control of similar processes through ideas as cues or symbols. The various reactions to cues range from simple reflexes to systems and even disparate personalities.

Many of these reactions are indirect; that is, they occur not from the presented cue or symbol itself but from some intermediate reaction

²⁴ Adapted from Charles Baudouin, *Suggestion and Autosuggestion* (Paul, tr.), 1921, 134 (Dodd).

like an emotion, a skeletal-muscular response, a thought, a habit, or a complex, which is aroused by the symbol. Nevertheless, the reactions occur, and in some cases, it seems, they occur very directly.

The evidence. The more unusual effects that are reported merit, of course, the more critical judgment. Whenever conditions are not controlled, observers can be deceived, and the observed can deceive either consciously or unconsciously.

When Janet was 22 years old, he was so impressed by the errors in witnesses' accounts of séances that he adopted the rule of making notes constantly while observing any subject or patient, and of drawing upon no recollection thereafter unless it corresponded exactly with some written note.²⁵ Modern recording devices, visual and auditory, permit still greater accuracy.

Wolberg suggested to a hypnotic subject that, after the hypnosis, the subject would develop hives on his forearms. A few days later his skin seemed badly irritated but not by hives. "He denied that he had in any way irritated the skin, insisting that when he awoke from sleep that morning he found the skin scratched and inflamed. Under hypnosis, however, he confided that he had, following the trance, taken a walk through the woods. Here he picked poison ivy leaves and rubbed them vigorously on the inner surfaces of his arms. Later, he developed a complete loss of memory for this, probably to convince me that he had spontaneously complied with my request."²⁶

All observations ought to be controlled, and we ought to be critical of all evidence. Still, as Moll said, monsters, and triplets, and millionaires, are uncommon, and many people have never seen them, but this does not prove that they are myths. The more striking observations, in so far as they are controlled, may yield important truth.

Classification and selection. The effects of suggestion we shall divide roughly into particular and general. The particular effects involve the more componental psychological functions, vegetative, affective, muscular, etc. The general effects involve more obviously the whole organism, as in "transference," negativism, hypnosis, and the like.

Under each heading, the divers effects cited are more representative than exhaustive.

²⁵ Cf. *Autobiography*, in Carl Murchison (ed.), *A History of Psychology in Autobiography*, 1930, 126 (Clark Univ. Press).

²⁶ Lewis R. Wolberg, *Medical Hypnosis*, 1948, 1:49 (Grune).

Particular Effects

Vegetative. Basic reflexes, endocrine activities, metabolic processes, blood reactions, healing of injuries, skin functions, allergic processes, alimentative, eliminative, and sexual reactions often respond to suggestion.

Respiration may be affected in anyone by pleasant or unpleasant ideas. In some subjects, respiration has been largely if not wholly stopped for several minutes by suggestion. Various related effects, including some asthmatic and allergic involvements, are reported.²⁷

Moll saw a hypnotic subject's eyes water "when it was suggested to him that he was smelling an onion. . . . A gentleman who believed he was a child again imagined he had been disobedient, and as he asked forgiveness he shed many tears."²⁸

Endocrine variations, metabolic changes, and bone formation, influenced markedly by suggestion, are reported likewise.²⁹

Several authors cite suggested pulse changes, blood pressures, nose-bleeds, bloody tears, skin reddening, and even bleedings, wheals, blisters, stigmata patterned after those of Christ, urticaria, dermal allergic reactions, eczema, psoriasis, cures of warts, perspiration, goose-flesh, and temperature changes. Most of those authors, however, have urged caution about such reports; and some other authors who have examined the reports and have tried to produce similar effects remain skeptical on some points.³⁰

No less striking are the accounts of alimentative, eliminative, and sexual effects. Salivation, gastric and related secretions, hunger contractions, digestion, vomiting, production of urine, purgation, retention, evacuation, various disorders (including ulcers) of the alimentary tract, genital secretions, menstruation, conception (given the egg and sperm), false pregnancy, real parturition, abortion, and lactation all seem to respond, in some cases markedly, to suggestion.

To take only a few examples: Moll induced hunger and thirst in

²⁷ Albert Moll, *Hypnotism*, 1907, 126 (Walter Scott; Scribner); PA 14 1357; H. Flanders Dunbar, *Emotions and Bodily Changes*, 1947, 237-268 (Columbia Univ. Press); Wolberg, *op. cit.*, 1:51.

²⁸ Adapted from *op. cit.*, 127.

²⁹ Dunbar, *op. cit.*, 137-197; Paul C. Young, *Psychol. Bull.*, 1941, 38:97; Dunbar, 410.

³⁰ Cf. H. Bernheim, *Suggestive Therapeutics: A Treatise on the Nature and Uses of Hypnotism* (Herter, tr.), 1890, 75-77 (Pentland); Pierre Janet, *The Mental State of Hystericals*, 1901, 513 (Putnam); Moll, *op. cit.*, 131-138; Henry Maudsley, *The Pathology of Mind*, 1880, 302-303; Roswell P. Angier, *Psychol. Bull.*, 1911, 8:154-155; Daniel Hack Tuke, *Illustrations*, 1873, 346-347; PA 9 691; Moll, 124-129; Dunbar, 197-236, 372-409; Frank A. Pattie, Jr., *J. Abn. Psychol.*, 1941, 36:62-72, or in Lesley Kuhn and Salvatore Russo (eds.), *Modern Hypnosis*, 1949, 279-291 (Psychological Lib.).

hypnotic subjects by suggestion. He cited Debove's removal of hunger in one subject to such an extent that he took no regular food for 14 days. According to Tuke, a house surgeon of about 1850 gave 100 patients "such inert draughts as sugared water; then, full of alarm, he pretended to have made a mistake in inadvertently giving them an emetic. . . . No fewer than 80—four-fifths—were unmistakably sick." Haberman mentioned a hysterical woman, strongly constipated and not affected by taking purgatives herself, who could achieve a bowel movement only by *giving castor oil to her child*. Moll recorded that "Tissié hypnotized a patient and suggested to him that the right ring finger should indicate sexual desire and the left abstinence. When the patient awoke, contact with the right ring finger caused sexual excitement, contact with the left subdued it. Once Tissié forgot to remove the suggestion, and the consequence was that for twenty-four hours the patient was unable to refrain from coitus and masturbation, as well as spontaneous emissions."³¹

Affective. Hedonic tone, positive or negative, and the various emotions are notably subject to suggestion.

Everyone has seen children and others made happy or unhappy by suggestion. Fear, anger, love, hate, disgust, awe, and the rest, with their bodily accompaniments, can be aroused likewise. In hypnosis, such effects are often dramatic.

Suggested affects, like all affects, tend to persist for a time; for, as Hume remarked, "the imagination is extreme quick and agile," but, with respect to the emotions, the mind "resembles a string-instrument, where after each stroke the vibrations still retain some sound, which gradually and insensibly decays."³²

Sensory. Judging by the reports, suggestion can influence all the senses. Perhaps every sensory effect could be considered a simple positive or negative hallucination, hence could be classified under thought; yet it is most natural to think of these effects as sensory.

Suggestion makes many persons experience touches, temperatures, pains, flavors, odors, colors, and sounds without "objective" cause.

³¹ Moll, *op. cit.*, 119; PA 10 340; Tuke, *op. cit.*, 96-98; Bernheim, *op. cit.*, 42; J. Victor Haberman, *Med. Rec.*, 1917, 92:931; adapted from Moll, 119-128; Karen Horney, *Am. J. Obstet. Gynaec.*, 1933, 25:694-704; PA 9 2390; Dunbar, *op. cit.*, 269-351; Daniel Wolford La Rue, *Mental Hygiene*, 1927, 329 (Macmillan).

³² *A Treatise of Human Nature*, II, ix.

For example, to quote Moll: "I tell a hypnotized person that he is standing on ice. He feels cold at once. He trembles, his teeth chatter, he wraps himself in his coat. I say to a gentleman, 'Tomorrow at three o'clock your forehead will itch.' The posthypnotic suggestion proves true: the forehead itches so much that the subject rubs it continually."³³

W. R. Wells developed a graduate student called "Forrest" into an excellent hypnotic subject. One afternoon at two o'clock he hypnotized him deeply. Then, as Wells described it, "I pressed a half-dollar against the skin of his left forearm. I stated that, though it was only a half-dollar taken from my pocket, it would feel warm, and then hot, just *as if* it were a branding iron heated in the flames. Forrest reported that he did experience heat and pain, which increased until he said that he could not endure the suffering for long. I said that the heat as experienced would diminish until it would be endurable. Thereupon he reported that the heat and pain had diminished a little. I then said that, so far as hypnotic methods worked with him, the experienced heat would remain constant following hypnosis for a period of 24 hours, and that tissue changes resembling a blister would appear during this period. I then removed the coin and brought Forrest out of hypnosis with complete amnesia for all that had occurred. I asked him to take notes on whatever happened and to report results to me at class time the next day.

"I went downtown, returning to my house at 4:45 P.M., when I learned something had gone wrong with the experiment. I had said to the subject in hypnosis, 'The experienced *heat* will remain constant for 24 hours,' overlooking the obvious point that if this should occur the *pain* would not remain constant but would *increase*. It was as if a hot iron at constant temperature were pressed against his arm and soon became unbearable. His notes kept during this time contained the following:

'2:26—Red, slightly swollen center . . . Center so hot it will not bear touching . . . Blister more distinct now—at 2:35 . . . So hot consciousness almost blank. . . 2:40—Am crying with pain. Can write no more.'

"At this point he set out trying to find me in order to have the experiment stopped. I was not at home; but he saw five members of the class on the campus and asked them to try to find me. One of them reached me by telephone just after I returned home. The five students had been much alarmed by Forrest's evident suffering, and I was alarmed by the frantic telephone call. I went at once to Forrest's home where I found Forrest showing as obvious signs of severe suffering as I have ever observed.

³³ Adapted from op. cit., 108.

"I terminated the experiment at once, of course. Being a previously well-developed hypnotic subject, Forrest was put into deep hypnosis in a few seconds, and the pain was at once stopped. I had not produced any evidence of tissue changes resembling a blister, though Forrest had observed such. This was an illusion or hallucination on his part, not intended by me. But I did produce striking evidence of the reality of hallucinatory pain, as indicated by Forrest's notes and by his general behavior. I am convinced that he would not have suffered more if there had been an actual hot iron pressed against his forearm all this time."³⁴

Suggestions also keep many subjects from having sensations from stimuli which are present. Beginning with prehistoric times, severe operations have been performed with only hypnotic anesthesia; and countless persons have forestalled pain and other unwelcome sensations through autosuggestion. Moll, like Bernheim and many others, noticed that the hypnotized person's "mucous membranes can be made anesthetic by suggestion. The fumes of ammonia in the nose, and tickling of the throat, are not felt; the conjunctiva can be touched without producing the corresponding reflex, and even the cornea may become insensitive. The muscular sense can also be inhibited by suggestion. 'You can no longer hear'; 'you are deaf,' or 'you are blind.' These words deprive the hypnotic of the corresponding sensations. A command restores the functions. Exactly speaking, the corresponding organ of sense performs its functions, but the process does not reach the consciousness."³⁵

Wingfield reported the following observation: "Having concealed the subject's hand from his view by means of a simply-arranged screen, I suggested that he would be unable to feel a prick with one point of a pair of compasses, but that he would feel at once if pricked with both points. I found that I could draw blood without making him flinch if I pricked him with one point; but he rebelled immediately if I pricked him with both points. Also, he could be made to feel the touch of soft cotton-wool, and yet be quite impervious to a sharp needle prick, and in one case even to the scorch of a burning match."³⁶

As applied, however, suggestion fails to make many people profoundly analgesic and not subject to shock. Even in hypnosis, to quote Moll again, "a complete analgesia is extremely rare, although authors, quoting from one another, assert that it is common." Bernheim remarked that a patient about to undergo an operation is often too nervous to be a good hypnotic subject. Dorcus obtained psychogalvanic

³⁴ Adapted from Wesley R. Wells, *J. Psychol.*, 1944, 17:288-289.

³⁵ Cf. Bernheim, *op. cit.*, 84-85. Quotation adapted from Moll, *op. cit.*, 112-113.

³⁶ H. E. Wingfield, *An Introduction to the Study of Hypnotism Experimental and Therapeutic*, 1920, 104 (Baillière).

skin reactions to mild electric shock in the waking state and in hypnotic anesthesia but not with local injection of novocaine. Neutra, a German obstetrician, observed more postoperative and postdelivery shock after hypnotic than after medical anesthesia. Similar doubts have been raised about the suggested anesthetics reported for higher senses.³⁷

On the other hand, Sears applied pain stimuli to subjects' hypnotically anesthetized areas and to normal areas, and measured the galvanic skin reaction, the pulse, the respiration, and facial flinch in each case. He concluded that "voluntary inhibition of reaction to pain does not present a picture even remotely resembling the reaction under true hypnotic anesthesia." Dynes, through hypnotic anesthesia, practically did away with the cardiac and respiratory changes which follow normally when pain stimuli are applied to the skin or a pistol is fired. Loomis, Harvey, and Hobart fastened their subjects' eyes open with adhesive tape, then, for fifteen seconds, suggested that they could see; for fifteen seconds, that they were totally blind; then that they could see; and so on. These investigators obtained, during the "blind" periods, and only during those periods, brain waves which are typical of blind persons or persons with closed eyes. They were unable, however, to obtain such waves through suggesting blindness to subjects who were not hypnotized. Erickson hypnotized six subjects and made all of them functionally color-blind, as shown by the Ishihara tests. Likewise through hypnosis, Erickson made four subjects partially deaf, and six totally deaf, judging by their reactions to some 15 different tests. Several of his subjects found sudden restoration of hearing after each experiment so painful that he had to develop a way of restoring the hearing gradually. As one subject put it, it was "just like being in the midst of a deep, peaceful silence and then being thrown forcibly into the din of a boiler factory going full blast. It hurts you all over."³⁸

Such findings suggest that, within certain limits, different investigators' different results depend largely upon their individual subjects and methods. Some subjects are far more amenable to suggestion than others, at least with a given amount of training in suggestion. Some methods of training are more effective than others; and variously framed suggestions are variously effective. For experiments in suggestion, even experienced hypnotists and laboratory workers can learn

³⁷ Adapted from Moll, *op. cit.*, 120; cf. Bernheim, *op. cit.*, 22; Roy M. Dorcus, and W. Neutra, cited in Dorcus and Shaffer, *op. cit.*, 226, 134, 225; Ralph R. Brown and Victor H. Vogel, *J. Appl. Psychol.*, 1938, 22:408-420; Dorcus and Shaffer, 226; Frank A. Pattie, *Am. Psychologist*, 1947, 2:424.

³⁸ Cf. Robert R. Sears, *J. Exp. Psychol.*, 1932, 15:1-22; John B. Dynes, *J. Abn. Psychol.*, 27:79-98; Alfred L. Loomis, E. Newton Harvey, and Garret Hobart, *Science*, 1936, 83: 239-241; Milton H. Erickson, *J. Gen. Psychol.*, 1939, 20:61-89, 1938, 19:127-167.

much from Erickson's ingenious, careful selection, thorough preparation, and systematic testing of his subjects.³⁹

Many authors have claimed that the senses can be made more acute by suggestion, especially in hypnosis. Perhaps the truth is that suggestion makes some subjects attend to certain stimuli more closely than usual.⁴⁰

Perceptual. The perceptual effects are more elaborate.

As Moll said, "It is well known that hypnotics will drink water or even ink for wine, will eat onions for pears, will smell ammonia for eau de cologne, etc. It suffices to assert that a dog is present, and a dog will apparently be seen. I take a black cloth and put it into a subject's hand. 'You feel this dog quite plainly?' 'Quite plainly.' 'Now you can open your eyes. You will see the dog clearly. Then you will go to sleep again and not wake until I tell you.' He opens his eyes, looks at the imaginary dog, and strokes it. In this case a cloth was taken for a dog, consequently this was an illusion. An illusion is more easily induced than a hallucination; in the absence of an external object, such as the cloth, the suggestion often fails. When I do not offer some such object the hypnotic often finds it for himself."⁴¹

Many a person underestimates time, or overestimates it, according to suggestions which he receives. Some observations indicate that hypnotic suggestion can increase ability to judge time; others, that the subject merely thinks he can judge time better under suggestion than he can in everyday life.⁴²

Thought. Suggestion gives rise to many thoughts, beliefs, intentions, purposes, dreams, hallucinations, obsessions, and amnesias. Some of the effects come from suggested moods, sensations, or other reactions; but some are more direct.

Fisher and Marrow found that suggested moods affected the association times and thought content of normal and abnormal subjects.⁴³

One hums the first part of a tune, and a preoccupied companion goes on with it by suggestion.

³⁹ Cf. Paul C. Young, *Psychol. Bull.*, 1941, 38:98-100; Erickson, *loc. cit.*, etc.

⁴⁰ For discussion, cf., e.g., Moll, *op. cit.*, 113-118; Paul C. Young, *Am. J. Psychol.*, 1925, 36:214-232.

⁴¹ Adapted from Moll, *op. cit.*, 107, 34, 107. Cf. 356-363, above.

⁴² Cf. Linn F. Cooper, *Bull. Georgetown University Medical Center*, 1948, 1:214-221; Wolberg, *op. cit.*, 1:46-47. Cf. also Cooper and Erickson, *Bull. Georgetown U. M. C.*, 1950, 4:50-68.

⁴³ V. E. Fisher and Alfred J. Marrow, *Cha. and Personality*, 1934, 2:201-208.

Hypnotic and other varieties of suggestion have been used in many cases to bring back memories which were not recalled ordinarily. Some examples were cited in earlier chapters. Even alcoholic amnesias have been repaired through hypnosis, though not always accurately. Stalnaker and Riddle observed much fabrication in hypnotic recall of poems learned in childhood. White, Fox and Harris found improved memory in hypnosis not for nonsense but for meaningful material, which in their experiment was meaningful poetry. Perhaps it is only deeply significant material that can be recalled long after in hypnosis or some other special condition.⁴⁴

Among the most familiar hypnotic phenomena are suggested beliefs. Moll again provided good examples:

"I told him, 'You are Napoleon I,' upon which he assumed the famous posture of Napoleon after the battle of Waterloo, but spoke German, as he did not know French. As Frederick the Great, he walked with a crutch in the well-known gait, and knew nothing about railroads. Subjects can be made to believe they are animals; they will bark like dogs, or croak like frogs. They can even be changed by suggestion into inanimate objects, such as stoves, chairs, tables. When X. thinks himself a chair he crouches down on both legs; when it is suggested that the chair has a broken leg, he sinks his knee to the ground and rests on one leg; when he is a carpet he lies flat and motionless. These experiments in suggestion may be carried still further. 'You are made of glass,' I say to a subject; he stands perfectly still. When I tell another that he is made of marble, he stands stiffly and cannot be moved; but directly he believes himself to be made of wax he becomes plastic and allows himself to be placed in any attitude."

Moll added that Bernheim showed that "complete delusions of memory can be induced in certain people without their ever having been hypnotized. It is only necessary to repeat to them confidently that such and such a thing has happened, and they become unable to distinguish fact from fiction."⁴⁵

Many false beliefs have been implanted through cultural suggestion. Examples are, in Japan, widespread belief in possession by foxes; and in medieval Europe, encroachments of incubi and succubi, and transformation of people into wolves and other animals; and in many cultures, "witches' spells" and possession by devils.⁴⁶

⁴⁴ Cf. 22-23, 47, 105, 274, 281-282, 285, above; PA 2 694, 24 3998; John M. Stalnaker and Ethel M. Riddle, *J. Gen. Psychol.*, 1932, 6.429-440, cited in Clark L. Hull, *Hypnosis and Suggestibility*, 1933, 113 (Appleton-Century); Robert W. White, George F. Fox, and Walter W. Harris, *J. Abn. Psychol.*, 1940, 35:102; and 269, above.

⁴⁵ Moll, *op. cit.*, 151-155.

⁴⁶ *Ibid.*; Clarence B. Farrar, *Am. J. Insan.*, 1908, 65:88-89; Whitwell, *op. cit.*, 120.

Some delusions come from close association with a deluded companion.⁴⁷

Dreams can be influenced by hypnotic suggestion especially. "To-day," said Moll, "'you will dream that you are at Swinemünde; you will go on the Ostsee in a boat with six people; the boat will be upset, and you will fall into the water and wake.' The subject dreams this in detail. Dreamless sleep can be induced in the same way; or at least the subjects do not remember if they have dreamt."⁴⁸

Familiar, too, are suggested hallucinations. To the examples given previously⁴⁹ we add only these:

Seashore got a number of subjects to find out from what distance they could see a bead against a black surface. When, without their knowledge, he removed the bead, about two-thirds of the subjects saw it when they walked up to the point from which they expected to see it.⁵⁰

Rosett remarked that hallucinations from concentration upon a highly suggestive stimulus are not uncommon. Thus, "a vivid picture on the cinema screen represented a boy and a girl pulling down hay from a stack for bedding. I sneezed—from the dust of the hay shown on the screen. On another occasion a colored picture of lilacs—a favorite flower—moved by a gentle breeze, was shown on the screen. I smelled the odor of lilacs distinctly."⁵¹

Braid told of two sea captains who arrived in port and went to their usual lodgings. The landlady told them that she was sorry, but the only room they could have had was occupied by the corpse of a man who had just died. Rather than go elsewhere, the captains offered to sleep in that room anyway; and the landlady permitted them to do so. After they went to bed, one of the men informed the other that any room with a corpse in it, after midnight, becomes full of canaries which fly about and sing. The other man was surprised; but, when the candle was put out, he not only *heard* music, but *saw* canary birds, and *felt* them flying against him. The first captain had imitated the canary's song by blowing through a reed dipped in water; but the visual and tactual elements were hallucinatory.⁵²

According to Bose, "Dr. Hensoldt watched a Yogi plant a mango, a fruit from a tree which reaches a height of 120 feet. Hensoldt was startled to see in the air above the spot a large tree, becoming visibly more distinct, until at length there stood as natural a tree as ever I had

⁴⁷ Cf. PA 2 160, 7 1394, 8 2615, 11 3754, etc., especially 24 1361.

⁴⁸ Moll, *op. cit.*, 157. Cf. Dorcus and Shaffer, *op. cit.*, 230.

⁴⁹ Cf. 379-387, above.

⁵⁰ Cf. Carl E. Seashore, *Studies from the Yale Psychol. Lab.*, 1895, 3:1ff.; Cheves West Perky, *Am. J. Psychol.*, 1910, 21:422-452; Erickson, *J. Gen. Psychol.*, 1938, 19:139.

⁵¹ *The Mechanism of Thought*, 1939, 212 (Columbia Univ. Press).

⁵² Cited by Tuke, *op. cit.*, 145-146.

seen in my life. All this happened within five minutes of the burying of the fruit.' The English officers not present from the beginning saw nothing at all. Then the Yogi preached so absorbingly that Hensoldt 'seemed to forget time and space.' When the Yogi ceased speaking the tree had gone. Then he dug up the mango. This feat Hensoldt saw five times. He saw thrice the celebrated rope trick. The Yogi, after preaching a most impressive sermon, 'took a rope about 15 feet long, held one end in his left hand, and threw the other end up in the air. Then, to my utter amazement, the Yogi *climbed up* this rope, and kept on climbing until he was out of sight.'"⁵³

In a ward full of sick patients, Bernheim suggested to a hypnotized subject that, after waking, he would see in each bed a dog instead of a patient. Upon waking, the subject was "perfectly astonished to find himself in a hospital for dogs."

The same investigator hypnotized a young girl who was, in his judgment, highly intelligent, not at all flighty, and perfectly trustworthy. He suggested that when she awoke she would see a rose. She not only saw it but touched it, smelled it, and described it. Then, knowing that he might have suggested the rose, she asked whether it was real or not. Bernheim told her that it was imaginary. She believed him yet was certain that she could not make it disappear. "If you put a real rose in its place, or by it," she said, "I would not know how to distinguish them." For ten minutes she saw the rose, and even moved it about. Then Bernheim said: "Look at it for the last time; it is going to vanish." Thereupon it *gradually disappeared*.

He made a married woman see a portrait of her husband. "She saw it even the next day, knowing full well that the portrait did not exist." In other subjects he induced elaborate posthypnotic hallucinations, pageants in which all the senses took part.

He added that many subjects do not develop such vivid hallucinations; and some, when awakened, remember what they were supposed to see or hear but do not experience it.⁵⁴

Wells produced in a hypnotized subject a hallucination of a fountain pen which was to persist after waking until removed by a signal. After waking, the subject saw before him both Wells's own pen and the hallucinated one. Wells told him that the second pen was hallucinated, and, when he doubted that it could be, others who were present assured him that it was so. He then signed his name once with the real pen, and twice with the hallucinated one. Though he knew the latter was unreal, he saw the signatures as clearly as the one he had written

⁵³ Adapted from E. A. Ross's quotation, *op. cit.*, 28-30.

⁵⁴ Cf. Bernheim, *op. cit.*, 40-41; Vittorio Benussi, *Psychol. Forsch.*, 1928, 9:201ff.; Erickson, *Psychosom. Med.*, 1943, 185-187; Wolberg, *op. cit.*, 1:39-41.

with the real pen; he continued to see them for seven months, the period during which he was tested; and, when the paper was photographed, he saw the same signatures on the photographs.⁵⁵

Negative hallucinations can be induced similarly.⁵⁶

Various amnesias result from suggestion. Moll hypnotized a man of 43 and said to him: "You no longer remember anything that happened to you since you were 30!" This caused a blank in the man's consciousness; he could not answer questions about those 13 years, and he did not remember how he met Moll or how he came to be where he was. Prince reported amnesias produced likewise for what he called chronological systems, subject systems, and mood systems. Wells induced, in a few subjects, amnesias that were complete for the items indicated and lasted for a year. Erickson and Brickner observed amnesia also for related material not mentioned by the hypnotizer.⁵⁷

Some amnesias, alcoholic, epileptic, or traumatic, as well as amnesias caused by suggestion, can be repaired by suggestion; that is, suggestion may enable the subject not merely to imagine but to recall and recognize what he had forgotten.⁵⁸

Alterations of consciousness. Suggestion can effect many general alterations of consciousness.

A common example is self-suggested waking at a particular time, or upon a particular signal. Another is induction of sleep. Erickson led a hypnotized patient to duplicate, it seemed, a period of unconsciousness which this patient had suffered two years before. Through hypnotic suggestion, various investigators have "intoxicated" men without alcohol, and have sobered, markedly, men who really were intoxicated.⁵⁹ Further alterations of consciousness we shall take up presently.

Skeletal-muscular. Many motor effects, also, can be ascribed to suggestion. These effects include variations of apparent strength and

⁵⁵ Reported in a paper read at Hobart College, 1948.

⁵⁶ Cf., e.g., Bernheim, op. cit., 44-45; Sidis, op. cit., 114-118; Wolberg, op. cit., 1:56-57; and, for mechanism, Moll, op. cit., 200-203.

⁵⁷ Cf. Moll, op. cit., 149; 280, above; Prince, *Clinical and Experimental Studies*, 1929, 96-100, or 1939, 148-152 (Sci-Art); Wells, J. Psychol., 1940, 9:137-151; Erickson and Brickner, *Psychosom. Med.*, 5:59-66.

⁵⁸ Cf. PA 2 694; 23, 281, above.

⁵⁹ Cf. William B. Carpenter, *Principles of Mental Physiology*, etc., 1888, 582; J. H. Elder, *Psychol. Bull.*, 1941, 38:557-558; Carpenter, 566; Erickson, *Arch. Neurol. and Psychiat.*, 1937, 38:1282-1288; Moll, op. cit., 154-155; PA 7 1376; Wolberg, op. cit., 1:50.

fatigue; countless motor abnormalities which could not be organically based; imitations of many organic motor abnormalities; and more general abnormalities like abulia.⁶⁰

Health. The effects of suggestion upon health, particular and general, are noteworthy.

Observers tell us that fear favors the spread of plagues, and that trusted charms make for immunity. Andrew D. White noted that many persons were benefited by touching "the bones of St. Ursula and her eleven thousand virgin martyrs," in Cologne, though these bones are now known to have come from an ordinary cemetery and included many bones of *men*. Bones heralded for ages as "the relics of St. Rosalia," at Palermo, were likewise efficacious, though modern science has shown them to be the bones of a goat.⁶¹

When railway travel was becoming popular, many Americans suffered from what was called "railway spine." This was supposed to come from prolonged vibration of the moving railway coach which produced "a comminution of the spinal marrow too fine to be detected by the microscope." When this theory was exploded, the malady died out. Hypochondriacal "rabies," "syphilis," and other ailments from heterosuggestion or autosuggestion are well known.⁶²

Ross mentioned the patient who "believes that he cannot eat this, that, and the other. When he tries to do it, he tries in a psychological state of depression. In consequence the food will not encounter normal gastric conditions, and indigestion ensues. The patient is therefore always right and is able to quote triumphantly that what is one man's food is another man's poison."⁶³

Prince gave these examples:

"A young physician, in whose family had occurred an appalling epidemic of diphtheria, found himself shortly afterwards near the diphtheritic wards in one of our large hospitals. Owing to the publicity

⁶⁰ Cf. Dorcus and Shaffer, *op. cit.*, 228-229; Dunbar, *op. cit.*, 128-136; Wolberg, *op. cit.*, 1:33-34; Moll, *op. cit.*, 149; etc.

⁶¹ Cf. B. S. Gowen, *Am. J. Psychol.*, 1907, 18:21; Tuke, *op. cit.*, 353; Ralph H. Major, *Faiths That Healed*, 1940 (Appleton-Century); A. D. White, *A History of the Warfare Between Science and Theology in Christendom*, 1896, 2:29 (Appleton); Robert Means Lawrence, *Primitive Psychotherapy and Quackery*, 1910, 61-62 (Houghton Mifflin); W. H. R. Rivers, *Medicine, Magic and Religion*, 1924, vii, 1, etc. (Harcourt).

⁶² Cf. Tom A. Williams, *Southern Med. and Surgery*, 1923, 85:293; Tuke, *op. cit.*, 78, 87-93; PA 2 1836; Ernst Kretschmer, *Hysteria*, 1926, 111-112 (*Nerv. Ment. Dis. Pub. Co.*); etc.

⁶³ T. A. Ross, *The Common Neuroses: Their Treatment by Psycho-Therapy*, 1937, 17 (Longmans; copyright, E. Arnold).

which had been given to the epidemic in his family, he was urged by the physicians and attendants not to enter the wards. But desiring to see one of the patients, and feeling that, as a member of the profession, *noblesse oblige*, he persisted in going in. Shortly after leaving the ward he was taken with a severe pain which simulated tonsillitis. The subject was absolutely convinced that his pain could not be due to local causes, and he endeavored to control it by an act of will. But no mental effort made the slightest impression upon the symptoms. It was only by persistent absorption in professional duties that he was able to free himself from them.

"A lady had been for years a terrible sufferer from rose cold or hay fever. The disease became aggravated by asthmatic attacks. She had become so sensitive to roses that the mere presence of a rose in the same room was sufficient to induce an attack. Suspecting the nature of her trouble, Mackenzie obtained an artificial rose. One day, when the lady came to his office, after assuring himself by careful examination that she was free from coryza, Mackenzie produced the artificial rose from behind a screen and held it in front of her. Almost immediately her eyes became suffused with tears, the conjunctivae injected, the puncta lachrymalia itching violently; her face became flushed, the nasal passages obstructed, her voice hoarse and nasal; there were also photophobia (fear of light) and secretion of fluid from the nasal passages; she complained of a desire to sneeze and tickling and intense itching in the back of the throat and in the auditory meatus; to this was added a feeling of oppression in the chest and a slight embarrassment of respiration. Examination showed the nostrils almost completely obstructed by swollen, reddened and irritable turbinated structures and filled with fluid. The mucous membrane of the throat was injected. At this point Mackenzie stopped the experiment, and the patient left the office with a severe attack of coryza.

"The sequel is equally interesting. The true nature of the rose was shown to the patient, with the result that on her next visit she plunged her face into a bunch of real roses without ill effects."⁶⁴

Even the special senses may function well or ill by suggestion. Münsterberg described the case of a young woman who was hard of hearing. She had become so because she feared that she inherited her father's deafness; and, when Münsterberg freed her from that fear, and proved to her that she could hear well, her hearing became normal. Erickson found that one young man, judging by his actual vision and headaches, needed eyeglasses when he was in his usual, adult state of

⁶⁴ Adapted from Morton Prince, *Clinical and Experimental Studies*, 1929, 71-73. He refers to Am. J. Med. Sci., 1886, 91:45 for accounts of various neuroses "associated with a fixed idea."

mind, but needed none when, through hypnosis, he was regressed to the age of eight.⁶⁵

Bourru, Burot, and others observed that many mental states of hysterical persons can be touched off through suggesting a key symptom of the given state. For example, let us suppose that a woman of 40 had a hysterically paralyzed arm when she was 15, but has not suffered from that paralysis for 25 years. If, through hypnotic suggestion, the arm is paralyzed, for so long as it remains paralyzed she is likely to feel, think, and act much as she did at 15.⁶⁶

Frazer told of a primitive Negro who ate a tabooed wild hen, supposing it to be domestic chicken. He did not learn what he had done until four years later, when he fell into such a fright that he died within 24 hours.⁶⁷

Tuke noted that "when a sentinel of Napoleon's army committed suicide by hanging himself in his sentry box, several followed his example when they became his successors in the same box. To prevent further mischief, Napoleon found it necessary to destroy the box by fire."⁶⁸

As Franklin remarked, "Whether real or imaginary, pain is pain and pleasure is pleasure." Binet and Féré pointed out that diseases caused by the imagination are not imaginary diseases. It is no less true that health caused by the imagination or, at any rate, by sound thinking, in so far as it can be so caused, is not imaginary health.⁶⁹

General Effects

Transference. This term, which is often shortened to "transfer," is not unrelated to the transfer of learning.⁷⁰ In psychoanalytic writings, however, transference or transfer occurs in various senses. In a general sense, the term seems to mean any affective attitude toward another person or group. In this sense, positive transfer, or simply transfer, means liking or loving, and negative transfer means disliking or hating, the person or group. Some authors call any suggestibility, also any sympathy or agreement, transfer. More particularly, trans-

⁶⁵ Cf. Hugo Münsterberg, *Psychotherapy*, 1909, 300 (Moffat); Erickson, *Psychosom. Med.*, 1943, 5:57; Dunbar, *op. cit.*, 352-371.

⁶⁶ After Alfred Binet, *Alterations of Personality* (Baldwin, tr.), 1896, 262 (Appleton).

⁶⁷ Cf. J. G. Frazer, *The Golden Bough*, 1911, 2:135-137 (Macmillan); Rivers, *op. cit.*, 50.

⁶⁸ Adapted from *op. cit.*, 77.

⁶⁹ Benjamin Franklin, quoted by Margaret Goldsmith, *Franz Anton Mesmer*, 1934, 147 (Doubleday); Alfred Binet and Charles Féré, *Animal Magnetism*, 1905, 353 (Kegan Paul); Dunbar, *op. cit.*, *passim*.

⁷⁰ Cf. 240-241, above.

ference means what we would call abnormal reintegration of attitude to a person. Thus, a woman of 30 who was in love when she was 20 may, without knowing why, be in love with her therapist; or a man who hated his father may find that, for no apparent reason, he has begun to hate his employer, neighbor, or therapist. (Menninger pointed out that it would be more accurate to say that the patient does not really love or hate his therapist but uses him as a scapegoat for emotional patterns hitherto inflicted upon relatives, associates, and others.)⁷¹ In such cases, we assume, the person who arouses the attitude resembles somehow the one who evoked it in the first place. Therein, like all reintegration, this kind of transference involves positive or negative transfer of learning.

For clearness, we shall use only the longer form of the term, and shall limit it to the specific meaning: *Transference is abnormal reintegration of attitude to a person.* Such transference may be positive, that is, liking, or negative, disliking.

Transference comes from the individual's own attitudes, but it is released by suggestion, in that the point of similarity between, say, the therapist and the historical person is the symbol for this unreflective reaction.

Negativism. After our previous discussions of negativism and contrary suggestion,⁷² one example may suffice.

Glick undertook to hypnotize a subject in front of a class and, as a test, suggested to the subject that his folded hands were locked and would not come apart. Thereupon, a young woman in the class found that her hands were locked. A young man who saw that she was trying to open her hands told her to relax them. Her response was what seemed to be a combined groan, scream, and wail. This made Glick release his subject and attend to her. He told her to relax and awaken, which she did at once. She explained that for some time she had hated this young man; and, when the fellow tried to break her incidental hypnosis, she wanted to get her hands apart so that she could pick up a chair and "brain him" for telling her what to do.

It occurred to Glick that here he might demonstrate negativism.

⁷¹ Cf. Karl A. Menninger, quoted in the Editors of *Fortune*, *The Nervous Breakdown*, 1935, 77n (Doubleday); Ernest R. Groves and Phyllis Blanchard, *Readings in Mental Hygiene*, 1936, 66-71 (Holt); Clara Thompson, *Psychiatry*, 1938, 1:205-216; and, for an example, Franz Alexander, Thomas Morton French, and others, *Psychoanalytic Therapy: Principles and Application*, 1946, 293-296 (Ronald). Cf. also PA 21 3594.

⁷² Cf. 468, 472-473, above.

He asked the young man, who had hypnotized several subjects, if he would try to hypnotize the girl. The man agreed immediately to do his best. When Glick asked the girl if she would be a subject for this man, she refused and told Glick much that he omitted from his published account. Eventually, however, Glick persuaded her to undergo the experiment "for the cause of science"; but she was certain that she could not be hypnotized by that person.

At the next meeting of the class, the girl reclined in a comfortable chair, fixed her gaze as the man directed, and listened to his suggestions. He began by suggesting relaxation. Each suggestion she took readily but negatively—the more he suggested relaxation the more rigid she became. Soon her whole body was stiff, her jaws were set, the muscles of her arms and legs stood out, and her face expressed defiance. She was so tense that Glick feared that the experiment might harm her. He therefore told the operator to suggest rigidity instead. The interruption, however, made the girl wake up, completely relaxed and apparently exhausted.⁷³

Regression. Though this term is often used loosely, it seems best limited to *abnormal return to earlier reaction*. So defined, regression is not mere shift to a pleasanter, simpler, or more basic reaction; it is not even normal revival of some earlier reaction needed for the present real situation; it is abnormal, unintegrated, revival of the earlier reaction, with conflictful inhibition or dissociation of more mature reactions.

Subjects who regress to earlier ages often write, draw, talk, act, and pass mental tests much as they would at those ages.⁷⁴

Moll hypnotized "a man who fought at St. Privat. His age was 41; I suggested to him that he was 22, and in the battle. He stood up at once, gave military orders, and commanded the artillery to fire. When I asked him if he knew Dr. Moll, he said, 'No; my doctor's name is R. I do not know Dr. Moll.' He knew nothing that had happened since the battle; he was unaware of the rheumatism for which I was treating him; he said he was quite well. When I asked him who I was, he replied that he did not know. It was interesting that he could not be induced to retreat; I tried to make him take a few steps backward, but he replied, 'I will not retreat one step without orders.' I suggested that the enemy was still approaching, but nothing would induce him to retreat. When I drew his attention more and more upon myself, and

⁷³ Abstracted from Harry Newton Glick, *Psychiatry*, 1942, 5:177-178.

⁷⁴ Cf. 281, 297-298, 320, above; Wolberg, *op. cit.*, 1:43-48; PA 7 5800, 9 2252, 26 1823.

told him that he must know who I was, the situation suddenly altered. He recognized me, and knew his real age, but had no idea of what had just passed.

"I caused a lady, aged 34, to believe that she was eight years old again. She spoke to her doll in a childish voice, cried when she thought I was about to take it away, and called for her mamma."⁷⁵

"Joe," the schizophrenic patient who illustrated affective unity with automatic writing,⁷⁶ was hypnotized and was asked to relive his mental breakdown and commitment to the hospital. He went back to his period of brooding after his mother's death, his sexual conflicts, his developing notions of his mother's spirit and other supernatural helpers, his suspicions of being misunderstood and persecuted, a fight with "persecutors" in a park, arrest by the police, and transportation to the hospital. "But I don't want to go in," he complained to the hypnotizer. "Go right ahead," was the reply; "tell me just what happens." "I won't go in! Let go of me" (to his escorts, and trying to shake them off). "Go ahead; tell me." "All right; I'm in. But where are you taking me now? Where does this hall lead to? What is this room? It's a padded cell! I won't go in there!" "Of course you go in there! Go right ahead!" "I won't go in there!" "Go ahead." At that, Joe screamed: "*Doctor, whoever you are, you shall NEVER put me in this padded cell!*" and he went for the hypnotizer's throat.

The hypnotizer perceived that he had let the regression get in the way of the rapport; so, dodging the attack, he said: "Joel Joel! Say my name! What is my name?" Joe relaxed somewhat. "Say my name." After a moment's hesitation, Joe replied, "Dr. Taylor"; and he relaxed further. "Say it again." "Dr. Taylor." "Where are we?" "In the little dark room." "What little dark room?" "On the second floor, near the stairs." "All right. Now, keep in touch with me, and go back to where you are entering the padded cell. Tell me what happens next." Thus the reliving was resumed.

Erickson showed that regression can be very complete and yet under the hypnotizer's control if the subject is led to identify the hypnotizer with "someone whom you know and like, and trust and talk to"—someone the subject knew during the period in question.⁷⁷

In some cases, regression is spontaneous, especially to traumatic patterns. Such regression occurs in sleep, hypnosis, narcosis, intoxication, and so forth, and upon meeting some reminder of the original pattern.⁷⁸

⁷⁵ Op. cit., 149-150; cf. also *ibid.*, 153-154.

⁷⁶ Cf. 224-226, above.

⁷⁷ Cf. Erickson and Kubie, *Psychoan. Quar.*, 1941, 10:592n; also PA 24 3998.

⁷⁸ Cf. Merton M. Gill, *Bull. Menninger Clinic*, 1948, 12:41-48; also 281, 490, 493-494, above.

Hypnosis. Apparently, hypnosis is enhanced suggestibility induced by suggestion, suggestion in the form of hypnotism. The term hypnotism covers the phenomena, induction and theory of hypnosis.

Hypnotism can be practiced by amateurs; but, for a number of reasons which we cannot go into here, it ought to be practiced only by professional people, and then only with certain medical and psychological safeguards.

Mob phenomena and mental epidemics. That mob behavior, leadership, and following, also rumors and crazes, derive from suggestion is obvious to anyone who is familiar with hypnotism.⁷⁹

Effects from Other Causes

This chapter has indicated that suggestion can control any physiological or psychological function within the limits of learning and of freedom from contrary motivation. Within those limits, the effects of suggestion are multifarious and often striking. The limits remain, however, together with many physiological causes of physiological and psychological effects. Thus, some endocrine changes, allergic reactions, and so on, come from suggestion; some such effects come from physiological factors; and many come from physiological and psychological factors together.

No one should suppose that all disorders are psychogenic, and that all therapy should be psychotherapy.

Further References

General: Alfred Binet, *La Suggestibilité*, 1900 (Schleicher, Paris); Henry C. McComas, *Ghosts I Have Talked With*, 1935 (Williams and Wilkins); PA 9 3721, 13 4640.

Techniques: Charles Bird, *op. cit.*, 272 ff.

⁷⁹ Cf. Edmund S. Conklin, *Principles of Abnormal Psychology*, 1935, 355-357 (Holt); Charles Bird, *Social Psychology*, 1940, 345-395 (Appleton-Century); Hadley Cantril, *The Psychology of Social Movements*, 1941 (Wiley); Gordon W. Allport and Leo J. Postman, *The Psychology of Rumor*, 1947 (Holt).

18 | Reactions to Stress

Things and actions are what they are, and the consequences of them will be what they will be; why, then, should we desire to be deceived?

Joseph Butler

It is hard for a free fish to understand a hooked one.

Karl A. Menninger

Motivation, conflict, dissociation, and the other foregoing topics converge upon this chapter and, through it, upon the one that remains. Ideally, each of these two chapters, Reactions to Stress and Mental Disorders, should be a book with many detailed examples and hundreds of references for interested students to draw upon. Apparently, however, both topics are more intelligible when presented briefly after the foregoing chapters than if presented at more length without them; and a brief survey should offer some perspective, whether or not the reader goes further. (Parenthesized references and those in footnotes giving authors and dates only may be completed through the Psychological Abstracts.)

Stress

Everyone experiences stress upon occasion. What is stress, psychologically?

Definition. In the view here presented, stress occurs whenever a situation so overwhelms a person that he is seriously worked up about

it. He is worked up acutely or long enough to have a great excess of general excitation relative to his adjustmental readiness. This does not mean necessarily a pathological excess, though it may be pathological; it means that to him the situation is serious. *Stress is serious excess of general excitation over adjustmental readiness.*

Stress derives from factors both external and internal to the person; in other words, from exogenic and from endogenic factors.

Exogenic factors. Excessive *stimulation*—stimulation that seems unduly sudden, strong, repeated, or continued; *obstacles*—a barrier over the drinking water, a prior settler on the desired land, a popular prejudice that thwarts one's plan; *lacks*—of rain, money, companions; *deprivations*—of food, loved ones, liberty; and *threats* of any such difficulties, cause stress.

Endogenic factors. Relative to the exogenic factors, *personal interests and limitations, native and acquired*, cause stress.

Thus, it is the very thirsty person who suffers stress when he fails to find water; the one seeking special prestige, when he fails to win the prize; the one who cares for so-and-so's good opinion, when it is not forthcoming; and the "neurotic perfectionist," when he fails to attain perfection.

"Ego involvement" especially, which we take to mean involvement of whatever part of himself the individual values most, makes for stress (G. W. Allport, 1943; Maslow, 1941).

Also, when ordinarily beset, only the person with a native or acquired weakness, dullness, lethargy, injury, untoward pattern, meaning, or inability to resolve a conflict suffers stress. Individuals differ in "tolerance" (Rosenzweig, 1938).

It follows that "the same stress" as judged by external factors—for example, the loss of a fortune—affects one person in one way, and a different person in a different way. A given stress would also affect a given person differently at different times, according to his health, restedness, experience, and preoccupation.

Interrelations. Some forms of stimulation are internal. Obstacles and deprivations cause lacks; all of these cause stimulation, like the stimulation from hunger; and no factors can cause stress until they cause internal excitation if not stimulation. Moreover, the several factors need not be specific; for example, insecurity outside the stress situation

makes that situation more stressful (Q. F. Curtis, 1941); and different factors often combine. The classification of factors into exogenic and endogenic and their subvarieties is merely convenient, and emphasizes aspects rather than compartments.

Types of Stress

Stresses seem too various, interrelated, and dependent on degree to be classified perfectly. The following headings, however, suggest aspects or overlapping types:

Excitation: extreme noise, light, pain, or any other kind of excitation.

Preston "once saw a small girl who had been failing the fourth-grade arithmetic regularly and very thoroughly, although she had done well in the third grade. Her mother thought that she was too young or inattentive or something. When the child had a chance to talk about the trouble, she said that her feet hurt. Bigger shoes solved the arithmetic problems. Whenever you think about a Behavior Problem, think of the Little Girl With the Tight Shoes. Be sure of the patient's physical condition first, but don't be too sure because the answer is almost **never as simple as that.**"¹

Frustration by any serious obstacle, lack, deprivation, or threat. Although intense or continued frustration may repress desire and weaken the individual, moderate frustration tends to enhance the desire and so increase the stress (H. F. Wright, 1937; Dollard, Doob, Miller, Mowrer, and Sears, 1939).

In our culture, common frustrations include those of hunger, love, sex, curiosity, play, autonomy, security, constructiveness, acquisitiveness, rivalry, cooperation, gregariousness, desire for approval, egoism, altruism, idealism, thought, purposiveness, integration, and **super-individual integration.**

Periods of most frequent frustration seem to be infancy, apropos of nursing, cuddling, and security; early childhood, when learning elimination control, eating, speech, and adjustments to new siblings, other people, school life, and obedience; sex, altruism, etc.; adolescence, with regard to sex, morality, religion, ability, and plans for adulthood; youth and maturity, relative to sex until happily married (for monogamous males at least), also to education, society, marriage, and vocation;

¹ George H. Preston, *Psychiatry for the Curious*, 1940, 33 (Rinehart). Cf. also Wesley R. Wells, *J. Psychol.*, 1944, 17:269-292.

upon marrying and having children; when the children begin to live their lives as adults; and in old age, when one's powers fail, the times have changed, friends are taken away, and leisure palls.²

Incidentally, it seems that the fear of death can be much worse than death itself. Careful observers report that most men, when actually dying, are too anesthetized by the causes of death to feel frustrated. Of nearly 800 distinguished men who died between the beginning of history and about 1920, and whose dying words are recorded, fewer than 3% indicated pain. Only 19% of those whose words could be judged for contentment when dying were discontented, 35% were more or less indifferent; and 46% were contented. Apparently the percentages that were discontented were, for royalty, about 34; military men, 29; statesmen, 25; artists, 20; writers, 17; those whose profession was religion, 15; philosophers, 15; physicians and scientists, 10; and poets, 6. These data are limited; but they seem to disprove any pessimistic generalization about dying, also not to argue against life.³

Special causes of frustration are all the exogenic and endogenic factors that have been mentioned, including, by implication at least, excessive demands, overprotections, restrictions, interpersonal tensions, isolations, bereavements, injuries, illnesses, defects, conflicts, boredoms, inferiority feelings, threats, and all serious dissatisfactions and limitations, real or imagined.⁴

For example, many recruits in the army experienced frustration from some officers' arbitrariness and from apparently unnecessary activities, delays, and the like.⁵

"It is said that Haydn, a sound and late sleeper, could be easily roused from bed by playing an unresolved chord downstairs. Soon the

² Cf. David M. Levy, *Am. J. Psychiat.*, 1937, 94:643-652, Margarethe A. Ribble, Phyllis Greenacre, and Mabel Hirschka, respectively, in Silvan S. Tomkins, *Contemporary Psychopathology*, 1943, 1:62 (Harvard Univ. Press), PA 9:2861, Ernest R. Groves, *Marriage*, 1933, 516-539 (Holt), Preston, *op. cit.*, 55-63, Jewellys P. Barker, in George Lawton (ed.), *New Goals for Old Age*, 1943, 71-80 (Columbia Univ. Press).

³ Arthur MacDonald, *Am. J. Psychol.*, 1921, 32:553, 554 (cf. also L. Laurent, *Des Etats seconds, etc.*, 1892, 86).

⁴ Cf. Robert M. Yerkes and Ada W. Yerkes, in Madison Bentley, F. V. Cowdry, and others, *The Problem of Mental Disorder*, 1934, 331 (McGraw-Hill); Robert W. White, *The Abnormal Personality*, 1948, 218 (Ronald); Frederick Lewis Allen, *Only Yesterday*, 1931, 329 (Harper); Taylor, *Readings*, 70, 365, 698-708; David M. Levy, *Maternal Overprotection*, 1943 (Columbia Univ. Press); W. B. Pillsbury, *J. Abn. Psychol.*, 1936, 31:312-323, K. M. Banham Bridges, *Ment. Hyg.*, 1926, 10:90-101; Lee M. Brooks, *J. Abn. Psychol.*, 1933, 27:375-379; Thomas D. Eliot, *Annals Am. Acad. Pol. and Soc. Sci.*, 1932, 160:184-190; Howard Becker, *J. Abn. Psychol.*, 1933, 27:391-410; PA 15:2866, 16:4270, 21:2707, 3124, 22:2334, 4080; Florence I. Richards, *Ch. Res. Clin.*, 1936, 2:No. 1, 3-19; James F. Bender, *Sex Men*, 1946, 43:299ff.; A. Pick, *Arch. de psychol.*, 1906, 6:141-147; Percival M. Symonds, *The Dynamics of Human Adjustment*, 1946, 50-70 (Appleton-Century).

⁵ Samuel A. Stouffer and others, *The American Soldier*, 1949, 1:210 (Princeton Univ. Press).

composer would be forced by the unrelieved tension so set up to come down and complete the unfinished sequence." The creative artist, if given no chance to say what he has to say, may break down.⁶

Conflict: great competition between responses. Conflict, like frustration, increases excitation and so may increase stress (Guthrie, 1938).

Various examples of conflict were given in earlier chapters.⁷

Many a person of mixed blood feels loyal to at least two racial groups but is repelled by the inferior qualities and the distrust or disliking that appear in each group (Reuter, 1929).

A person may suffer conflict through living with his family in a new environment whose traditions he accepts but they reject (R. E. Park, 1929).

A young minister in the nineteenth century wrote:

"I was brought up with great severity. Every innocent joy was condemned as a crime and the slightest expression of pleasure denounced as sinful. I became successful as a preacher; but I am intensely miserable; at one moment tormented with the idea that I am preaching falsehood and encouraging delusion—at another moment I have the most entire, unhesitating faith in the doctrines and the authenticity of Christianity. I feel the transition from one set of convictions to the other, and I seem as if I were two beings; and I am in momentary expectation of madness—God help me!"⁸

According to a study by Hunt, five male patients in a hospital for mental diseases had been members of a group of fifteen boys who grew up together in a poor neighborhood. Many of the boys had no parental guidance. When about ten years old they began to play around horse barns and were initiated into homosexual practices by men there. Throughout the same period, some of the boys attended a church where emotional revivals were frequent. Several of these boys became violently converted and resolved to give up their sexual perversions. Later, the resolves were broken. Each broken resolve made the boys feel more guilty, until they became almost continually miserable.

Some boys escaped the conflict. These boys had been more closely watched by their parents and did not join the homosexual ring, or had antireligious parents and so never went to church.

All those boys, and only those, who took part in the sex perversions and experienced the religious conversions were committed subsequently

⁶ James Grier Miller, *Unconsciousness*, 1942, 224 (Wiley); Eliot Dole Hutchinson, *Psychiatry*, 1940, 3:351-359.

⁷ Cf. 186-199, 275-277, 299, 316, 412-413, above.

⁸ Abstracted from A. L. Wigan, *The Duality of the Mind*, 1844, 187-189 (Longmans).

to institutions for mental disease. Apparently, the conflict between the two influences was too much for those individuals.⁹

As Kindwall observed, "The demands of civilized life on man are subtly and cruelly exacting; the fine discriminations demanded of him are innumerable and difficult. He must, first of all, love his parents. Both his natural inclinations and public opinion oblige him to do this. Yet he must emancipate himself from his parents, very often without any encouragement from them; on the contrary, they are rather apt to cling to him emotionally. Furthermore, the child, as he grows up, must inhibit his natural tendencies to acquire the things he wants by direct action; yet he must maintain his capacity and zest for competitive struggle for the goods of this world, in which struggle he must draw a hairline between what is moral and what is 'wrong.' And although he must acquire property and wealth, if possible, he must also be altruistic, generous, noble. He must be constantly exposed to sex stimulation through visual, aural, and olfactory channels, and he must take a manly interest in the other sex in order to be acceptable socially; yet he must remain continent or find his sexual outlets under conflicting rules, traditions, and emotions. He must have strong drives, be aggressive and alert, yet conceal these drives as much as possible. He must have a deep respect for the truth, yet learn to suppress, deny, or distort it on innumerable occasions. On such foundations does our civilization rest. If a man cannot make these fine distinctions he is called a 'rigid personality,' liable to mental or emotional derangement."¹⁰

From Lewin's work it appears that the basic intra-individual conflicts reduce to three types, namely, between approaches (for example, to either of two desirable positions), between avoidances (of a painful duty and punishment for not performing it), and between approach and avoidance (between joining a helpful political machine and shunning civic dishonor).¹¹

Boredom: irksome monotony. Perhaps boredom reduces to local fatigue and conflict.

A hobo explained: "As a youth I was put onto a machine. It was necessary for me to make a certain number of motions to operate

⁹ Abstracted from J. McVicker Hunt, *Am. J. Orthopsychiat.*, 1938, 8:158-164. Cf. also PA 7 183.

¹⁰ Adapted from J. A. Kindwall, *Ment. Hyg.*, 1937, 21:364, quoted in Thorsten Sellin, *Culture Conflict and Crime*, 1938, 60-61 (Soc. Sci. Res. Council). Cf. also PA 9 2357, 2852.

¹¹ Cf. Laurance F. Shaffer, in Boring, Langfeld, and Weld (eds.), *Foundations of Psychology*, 1948, 523-526 (Wiley); Symonds, *op. cit.*, 336-361.

the machine. Once I counted those motions. There were only nine. This was my life, making those motions. All day, six days a week, fifty-two weeks per year, I repeated those nine motions. As a man I got a larger machine and it required fourteen motions. Day in and out for ten years I fed my life to that machine. In the meantime I had married a girl who operated a machine in the same shop. We had some glimpses of happiness, but after all, existence for us both came down to those fourteen motions. Because I felt nothing was ahead for me I became ugly and on occasion would seek relief in booze. All the time the road was calling to me—'come out and play, lie under the trees and dream and bathe in the babbling brook.' One day I saw red and started to walk on that road. I have tramped over the country. I have been hungry and cold and threadbare a thousand times. I have been in jails, slept in flophouses and boxcars, panhandled on the streets, drunk when I could get the price of booze and now I'm a Bowery bum. I'd rather freeze and starve than go back to those fourteen motions; no, sir, I'm still on the road and on the way out."¹²

To be sure, there may have been other factors in this case. Individuals differ greatly in liability to boredom.¹³

Inferiority feeling. This does not mean integrated judgment of one's personal limitations. An integrated judgment that one is inferior to most people in material, social, and spiritual status would not cause stress, because one would have some sense of the limitations' causes, and of the worth of living one's best within one's ultimate limitations—a project in which all men are equal.

Inferiority feeling comes from unintegrated, adverse estimation of one's material, social, or spiritual status. Such estimation involves an unreasonable standard; most likely a standard that reflects either someone else's status, or someone else's estimation of one's own status (Maslow and Mittelmann, 1941; Ackerson, 1943). The feeling may be depression, disgust, fear, or anger; or it may combine these reactions. "An inferiority complex" is the feeling become stereotyped and perhaps linked with compensatory reactions.

Common sources of inferiority feeling are inexperience; undue demands from family or group; required subordination (Schaffner, 1948); racial difference (R. L. Sutherland, 1942); physical growth different from that of others (Lowrey, 1928 or 1931; Wilkins, 1938; Bayley

¹² Adapted from Robert Hunter by Morris S. Viteles, *The Science of Work*, 1934, 319 (Norton).

¹³ *Ibid.*, 329ff.

and Tuddenham, 1944; M. C. Jones, Bayley, and H. E. Jones, 1948); physical traits that are different (Stolz and Stolz, 1944; L. M. Bayer, Stanford Med. Bull., 1945); physical defects (C. R. Rogers, 1931); different clothing, toys, and so forth; family difference; cultural difference; difference in skills; different mental traits (inferior or superior to those of one's fellows—Lowrey); different moral values; and so on, whether the circumstances are real or imagined.

Naturally, various sources of inferiority feeling may combine. A shy, submissive boy called "Fatty" did not seem to mind the name until he received a poor school report.¹⁴

Guilt, or feelings of guilt, can be very wearing.

During World War II, many veteran infantrymen suffered from what Sobel called "the old sergeant syndrome." These men had been proud of and loyal to their companies, and they felt personally responsible for the deaths and injuries that had occurred. Apparently the strain of war aggravated their sense of guilt, and this aggravated their nervous symptoms.¹⁵

Threat of extreme excitement, frustration, conflict, boredom, inferiority feeling, or guilt represents stress.

Meredith's egoist suffered stress whenever others failed to look up to him as he expected. In Meredith's words, "Men whose pride is their backbone suffer convulsions where other men are barely aware of a shock."

T. A. Williams remarked that the convulsive attacks of hystericals are often merely upsets from threats to their cherished fixed ideas. Thus, one of Brissaud's patients, who for some five years had had a hysterical contracture of the fingers, reacted by an attack of "nerves" when Brissaud tried gently to relax the fingers. Brissaud observed that "his contracture is his life."

As Maslow and Mittelmann put it, the typical neurotic has shaky feelings of self-esteem and security. These must be guarded, defended, strengthened, if the individual is not to feel worthless, rejected, and helpless. Anything that threatens the already shaky self-esteem, the infirm security, or any of the supports or defenses for them, will be feared with the most intense fear. It is not the situation itself that is feared; it is the possible catastrophic breakdown (absolute worthlessness, absolute rejection) which the situation may bring that is feared.

¹⁴ Eugenia S. Cameron, Proc. Ch. Res. Clinic of the Woods Schools, 1938, No. 21:17.

¹⁵ Cf. Raymond Sobel, Bull. U. S. Army Med. Dept., 1949, 9:Nov. Suppl. No., 137-146.

This is why "neurotic strivings" have such force, such persistence, even at the cost of great deprivation and suffering. No deprivation is more to be feared than being deprived of self-esteem and security; no suffering can be more intense than in catastrophic breakdown.¹⁰

Combinations of various types of stress are common. Indeed, excitation involves frustration of one's desire for peace; conflict involves frustration of the competing responses; boredom, of desires for change; inferiority feelings and guilt, desires for security and self-respect; and each of these involves some threat.

"Robert was the second of four sons of a father who had committed suicide. The boy developed normally. At twelve years of age he began to seek relief from sex tension by masturbation, then became worried, and for two years imagined that his 'secret vice' showed on his face, that people were looking at him, that he was different from others. When, at fourteen, he discussed it with his mother and with his priest, they were able to reassure him. Unfortunately he carried away from them and the books to which they referred him the impression that masturbation was something that would undermine his health. When therefore he had given up this practice, he became just as upset over the nocturnal emissions which occurred, because he regarded them as nocturnal masturbation. He grew discouraged and became less frank in discussing his problems. Connecting the occurrence of emissions with the food he ate, he tried to overcome them by eating less, and even that little bit more slowly. Retrospectively he began to feel people had been trying to influence him to change his ideas about eating. He attributed his sex difficulties to impure thoughts and became increasingly more sensitive to sex topics, opening himself up to much teasing by the boys who recognized his embarrassment when these things were discussed before him. For three months before admission he was obviously worried; he lost weight, and he could not concentrate. When he became tense he developed headaches, became constipated, felt keenly that he was inferior to others, and thought people were watching him and could tell what sort of a fellow he was.

"When admitted to the Phipps Clinic, he appeared to be shy, hesitant, and diffident. He blushed easily, but he showed no deep preoccupation. Whenever he discussed sensitive topics, he spoke softly. . . . During a short stay of about three weeks in the Clinic, Robert spoke frankly about his problems, admitting a great deal of sex curiosity

¹⁰ George Meredith, *The Egoist*, 1894, 368, 61; Tom A. Williams, *Alienist and Neurologist*, 1909, 30:161; abstracted from A. H. Maslow and Béla Muttelmann, *Principles of Abnormal Psychology*, 1941, 59 (Harper).

which he had found no way of satisfying. . . . In the clinic all his sources of puzzlement were dealt with openly and directly, and he was finally discharged to his home with the arrangement that his priest act as his adviser.

"Nothing was heard from this patient for nineteen years, when, in answer to our inquiry, a letter from his mother informed us that he had developed into a 'fine, well-balanced man' who had taken honors in an English university, had taught high school, and was at the time finishing his work for a Ph.D. in preparation for a university career. He was happily married and, at the age of 35, had shown no tendency to a recurrence of his early preoccupation and puzzlement. Here we have a case of rather simple bewilderment in which the outstanding etiology consisted of a lack of orientation concerning a subject vital to the successful adjustment of any adolescent." (E. S. Cameron, loc. cit., 13-14.)

At a small university, the students were disturbed especially by any lack of social success or career security (Loomis and Green, 1947). Here frustration, inferiority, and threat are combined.

Unemployment often causes stress (Zawadzki and Lazarsfeld, 1935; Eisenberg and Lazarsfeld, 1938).

Socio-economic inequalities cause stress.

Mental disorder in one member of a family causes stress in the other members, and may determine the form of their reactions to the stress (PA 10 5816).

Life is by no means synonymous with stress; but we may doubt whether a life with no stresses could be the best life. Much depends upon the individual's available reactions to stress.

Reactions to Stress

All reactions, we assume, derive from excitations. Since every stress is excitation, and many a reaction may be either to ordinary excitation or to stress, in this section we shall mention a number of reactions that are not peculiar to stress. Many reactions, however, are characteristic of stress, if not of a particular type of stress.

Of such reactions, some students have emphasized aggression, direct or indirect, and substitute activity (Dollard, Doob, Miller, Mowrer, and Sears, 1939). Others have emphasized defense, escape, compensation, and so forth.

It seems possible to group the various reactions roughly under reflexes, instinctive reactions, redintegrations, trial-and-error, and more

complicated reactions. Of course these several headings and their subdivisions represent aspects or overlapping types.

Reflexes and Instinctive Reactions

Reflexes. This group includes sweating, blushing, startle, recoil, swallowing, facial reflexes, vocal reflexes, crying, trembling, paralysis, elimination, fainting, and the like, in their several varieties, as a result of stress (PA 7 4056). To illustrate varieties, sweating may be abnormally odorous;¹⁷ elimination may include bloody diarrhea (R. A. Noble, 1933); and fainting may be more or less complete, frequent, and long lasting.

During an air raid, according to Royon and others, cows vomit, dogs have fits of fear, and nursing babies reject their food. At the front, soldiers' nervous upsets are often marked.¹⁸

The more complex reflexes link this group with the one that follows.

Instinctive reactions. Partly because they are ill-defined and uncertain or covered with learning, we should allow for these reactions.

Chickens, Murchison observed, behave and peck one another according to position in the social hierarchy or "pecking order." In Murchison's flock, the most dominant rooster was good-natured even in his pecking and never resisted or ran from the experimenter. The least dominant rooster was restless, resistant, and fearful. The other roosters came between these extremes. The pullets were dominated by all the roosters, but they reacted differently. When a rooster was pecked by a superior he ran away quietly and dejectedly, with his head down. When a pullet was pecked by a rooster, she gave a startled cackle and darted away with spirit, with her head up.¹⁹

Redintegrations

Through experience, the excitations in stress become so conditioned to various patterns that they redintegrate these patterns; in other words, the excitations arouse redintegrations.

¹⁷ Daniel Hack Tuke, *Illustrations*, 1873, 283.

¹⁸ Communicated by Andrée Royon. Cf. PA 9 1243; Stephen W. Ranson, *Bull. U. S. Army Med. Dept.*, 1949, 9:Nov. Suppl. No., 3-6; Hans Selye, *Brit. Med. J.*, 1950, 1:1383-1392; Joseph Zubin, in Calvin P. Stone and Donald W. Taylor (eds.), *Annual Review of Psychology*, 1952, 271-277 (Annual Reviews).

¹⁹ Cf. Carl Murchison, *J. Genet. Psychol.*, 1935, 46:76-102. Cf. also PA 21 1601, chapter on Despair; Tamara Dembo and Eugenia Hanfmann, *Am. J. Psychol.*, 1935, 47:383.

Normal redintegrations express integration, hence usually are appropriate to the present situation; for example, a fire arouses the pattern of the fire drill.

Abnormal redintegrations are perhaps appropriate to some past or imagined situation; but they are inappropriate to the present one. Broadly considered, abnormal redintegrations include complexes, disparate systems, disparate personalities, and all stereotyped, unadaptive attacks, retreats, resignations, compromises, confusions, preoccupations, overcompensations, daydreamings, dramatizations, cynicisms, rationalizations, and so on down through the list of complicated reactions. More commonly, however, the term points to the simpler, bothersome mannerisms and idiosyncrasies, persistent, nonadjustive reactions and attitudes, and association neuroses.

According to Ribble, a breast-fed baby girl seemed perfectly normal until she was five months old. Then her mother was called away by an emergency. A faithful attendant gave the child a bottle regularly but in her crib. Within a week she was rolling her head from side to side, even bumping her head against the crib, as she went to sleep; she began to pull out bits of her hair; and she retained her stools and became seriously constipated. These reactions continued, despite careful regulation of diet, until her mother returned and gave the child her bottle with personal attention and love. During the four years that followed, however, the head-rolling and the constipation recurred whenever the mother went away; and in the fifth year, when Ribble reported the case, if the child saw her mother put on her hat while she herself was not dressed to go out, she became uneasy and twisted her hair.

Harrington remarked that a man who is under stress and has an uncomfortable collar wriggles his neck; and thereafter when he is under stress, whether or not his collar is uncomfortable, he is likely to wriggle his neck.

Also habitually redintegrated by stress are individuals' chronic anxiety, worry, scolding, blaming, contempt, self-pity, depression, guilt, negativism, arguing, distrust, guardedness, irresponsibility, maintaining distance through formality, or holding to a particular philosophy of life, regardless of new relationships or new truth. Any such individual's style of life is stereotyped.

Association neuroses are more particular redintegrations.

Vigue told of a young woman, 23 years old, who had been brought up without evident affection. She became a good tennis player. At the end of a social evening, as she was coming into her yard, she stumbled

and fell. Her next memory is that she came to on a divan in the living room and found that her arm was paralyzed. A nonpsychiatric physician placed her in a hospital with her arm in a cast. There her parents showed affection for her. After about three months the paralysis cleared up. More than a year later she lost a tennis match—and awoke the next morning with her arm paralyzed. Again it cleared up; but, after two more years, when she felt a need for affection, the paralysis returned.

Many a person who has had an organic disease, for example, spinal meningitis, has symptoms like limping, stooping, and pain that persist after the organic disease is cured. Hollingworth observed that often such residual symptoms in soldiers vanished when the armistice was signed and civilian activities beckoned.

A German soldier described by Simmel could not keep his forefinger and thumb from moving in a peculiar, rotary way. Through hypnosis he recalled that a Russian soldier had come over the breastwork and at him when he was screwing the adjustment of a grenade and that then an explosion "knocked him out." The symptom disappeared after the hypnoanalysis. In many such war neuroses, too, the symptoms vanished when the war ended, especially when the men were given some therapeutic excuse and found positions in civilian life.

A seventeen-year-old girl was found weeping at her desk. A social worker talked with her and learned that the girl and a younger sister lived with their mother. The mother was employed and worked long hours for the children. They had always appreciated the mother, but, of late, she had begun to talk and act unreasonably. She said that the girls did not respect her and that they were ashamed to be seen with her; she scolded them whenever they came home late; and she suspected them of immorality and called them bad names. She also got up at night and sat for hours in the cold kitchen, shaking her head and muttering.

The social worker called on the mother and talked with her several times. Gradually she learned that when the mother was a young girl her mother died and her father put her out to work as a maid. She had no schooling and no friends. A man who came to work at the same place got her to go away to live with him and they had the two children. He never married her; and he treated her so badly that she fled with the children and brought them up herself. She feared that the man would discover her, that the girls would learn that they were illegitimate, and that they, too, would go astray.

Gradually, over an extended period of time, the social worker was able to help this mother to unravel her difficulties and see herself in a new and better light. This eased her relations with her daughters,

who were able, with their mother's help and that of the caseworker, to make real headway in achieving a happier life for all three.²⁰

Although such examples may be complex and could involve organic or psychotic factors, they suggest how present excitation can touch off a conditioned reaction that is not really appropriate. Of course this reaction may be better for the individual than sheer emotional frustration; and the reaction may get him sympathy, a vacation, or a pension. Ordinarily, however, the reaction remains a relatively inappropriate one, and occurs when he is not well integrated.

Trial-and-Error

Normally, a person under stress is not limited to stereotyped reflexes, instinctive reactions, and redintegrations, but develops new patterns through trial-and-error, at least in thought.

Even in abnormal reactions, some trial-and-error appears.

A woman patient in a hospital spent her time making a peculiar, tortuous motion with her right hand. If someone held that hand, she made the motion with her left hand. If that were held also, she made it with her feet. If her hands and feet were held, she carried out the pattern with her body.²¹

If a tic is "cured" without adjusting an associated stress, the tic is likely to appear on the opposite side of the body, or in a new set of muscles; or, instead of a motion, the subject may develop a contracture, a paralysis, an anxiety, or some other reaction that he has associated with the stress.

A patient that Israeli studied set his heart on a gambling scheme. When the scheme failed, he became depressed and attempted suicide. When he failed in this, he returned confidently to the gambling.²²

Complicated Reactions

Of reactions too complicated for the foregoing rubrics alone, let us consider the several directions, attack, retreat, and so forth, normality and abnormality, and special forms.

²⁰ Abstracted from Ribble, *Am. J. Psychiat.*, 1941, 98:462-463 (in Tomkins, op. cit., 14-15); Milton Harrington, *A Biological Approach to Abnormal Behavior*, 1938, 337-338 (Science Press) (cf. also Meyer Solomon, *J. Abn. Psychol.*, 1934, 29:334-347); G. V. Hamilton, *Objective Psychopathology*, 1925, passim (Mosby); Josephine Johnson, *Now in November*, 1934, the father (Simon and Schuster); a case communicated by Charles E. Vigue; H. L. Hollingworth, *Abnormal Psychology*, 1930, 225-226, 222, 239, 385-389, 405 (Ronald); Ernst Simmel, cited by William McDougall, *Outline of Abnormal Psychology*, 1926, 301 (Scribner); Hollingworth, loc. cit.; Charity Org. Bull., 1930, No. 696 (Community Service Society).

²¹ Communicated by Milton H. Erickson.

²² Nathan Israeli, *Am. J. Orthopsychiat.*, 1935, 5:57-63.

None of the directions need be clearly conscious or intentional.

Attack is an attempt to master the situation; for example, to stop the stressful noise, remove the obstacle, or get what is wanted.

Retreat is turning away from the situation, physically or mentally; one may run away, think of something else, or stop thinking altogether.

Resignation is passive surrender; unready either to attack or to retreat from the situation, the individual continues to live, or to exist, in it.

Compromise is a patterned resultant of component directions; thus, one may attack a part of the situation, retreat from another part, and be resigned to the rest. This resultant is patterned in that the several directions are more or less obvious. An example would be pounding at the enemy with one's fists while backing away from him.

Confusion is an unpatterned resultant; the several directions are too mixed to be obvious. Examples include the trembling hand of one who wishes both to shake hands and to strike; the general confusion of one who is "at his wits' end"; and fits.

Normality and abnormality. Whether a given direction is normal or abnormal depends on whether it reflects integration and so is appropriate to the situation or not. Thus, attack is normal if it is wise, abnormal if foolish; and retreat is normal if the situation is too much for one's whole nature, and abnormal if one's best life depends upon attacking the situation. Compromise may be normal or abnormal similarly. Confusion, however, is always abnormal, for it reflects unintegration and is inappropriate, not adjustmental; but it is pathological only when serious and persistent.

Special Forms

The various attacks, retreats, resignations, compromises and confusions make up special forms of reaction to stress. According to whether they reflect integration and are really adjustmental, some of these forms are normal; some are either normal or abnormal; many are abnormal but not necessarily pathological; and some are evidently pathological.

Direct attack is a simple, though perhaps strenuous, attempt to master the situation; for example, to push through a barrier, or to take what one wants, or to smash a noisy object.

Dembo and Hanfmann (1935) noticed that some patients, when newly committed to a mental hospital, ran toward every door and tried to force the locks.

Indirect attack uses roundabout ways and stratagems.

Other newly committed patients set out to be "good patients": "I will work, I will tell them everything they want to know; I want to go home!"

Liberals under the Nazi regime did much planning to help civilization and themselves to survive.

A college girl had such an aversion to loose buttons that she could not bring herself to touch one. When she had to sew a button on, she picked it up with a piece of paper and made one or two stitches through it without touching it; then, as it was no longer loose, she could hold it and sew it on.

Kirkpatrick cited a nineteenth-century boy who, at the age of 10, lost both arms in an accident. He learned to use his feet successfully to write, draw, type, saw, split wood, use carpenter's tools, play the drum, the trombone, and the trumpet, shoot, swim, drive horses, and pilot a launch. He earned a handsome salary showing his skills in vaudeville. He became an omnivorous reader and an interesting conversationalist. He was a cheery, good-natured person and did not feel handicapped.

An undersized man liked to walk with men who were either shorter than he or abnormally tall (F. H. Allport, 1924). Some intelligent individuals who feel inferior choose as friends those who are relatively unintelligent (Sherman, 1938).

Slawkenbergius, in *Tristram Shandy*, had an extremely long nose and became an authority on noses.

Apparently William Lloyd Garrison became a reformer largely because he could not stand being unrecognized.

Leonard, when 28 months old, took a locomotive to be God come to punish him. For several years this experience, though perhaps not remembered consciously, made locomotives "a childish passion and God a more than ordinary childish speculation." Such fascination for the stressful may foreshadow either direct or indirect attack upon the problem.

Some children stay awake, wet the bed, are negativistic, have tantrums, or are delinquent, in order to manage their parents.

Many persons become ill, through autosuggestion if not through

exposure or deprivation, to gain affection, attention, or material reward.²³

Broadly viewed, indirect attack includes several of the forms that follow.

Development of special abilities is a well-known way to overcome social and economic limitations.

The boy who is inferior on the playground may become, if able, a superior joker, chess player, or student. The stutterer may develop a pleasant disposition.²⁴ (These same levels may be reached for other reasons.)

Deceit, either nonverbal or verbal, is a common resort.

Nonverbal deceit includes malingering, that is, feigning illness, injury, or defect. By extension, the term is applied to feigning legitimate causes for self-induced weakness, illness, or injury.

Malingering is common in persons who shun battle, toil, or other demands and seek protection or charity instead; in a word, in persons who find it worse to be fit than to be unfit.

A draftee dons thick glasses and pretends that he cannot pass the army tests of vision. Another pretends to be hard of hearing; a third, feeble-minded; and a fourth, insane. A soldier, on the eve of battle, secretly holds hot water in his mouth for several minutes, then asks to have his temperature taken, and so gets into the hospital. Another soldier, during an epidemic of chicken pox, wraps himself in a blanket used by a patient with scabies; and, when the bugs mark his skin, he is hospitalized for chicken pox.

Some malingerers seem to enjoy such deception. Others, more normal, suffer strain, both from conflict between honesty and dishonesty and from having to keep up the pretense. For example, T. A. Williams observed that pretended deaf-mutes were always on guard against

²³ Dembo and Hanfmann, 1935; G. W. Allport, J. S. Bruner and E. M. Jandorf, *Character and Personality*, 1941, 10.16-17; notes left by Pierce; Edwin A. Kirkpatrick, *Mental Hygiene for Effective Living*, 1934, 18-20 (Appleton-Century); D. A. Hartman, *J. Abn. Psychol.*, 1922, 17:262-264 (Taylor, *Readings*, 286-288); Taylor and Culler, *J. Abn. Psychol.*, 1929, 24:349; C. Macfie Campbell, *Ment. Hyg.*, 1920, 4:314; Stevenson Smith, *The Psychological Origin and Treatment of Enuresis*, 1948, 59, 67 (Univ. of Washington Press); Mandel Sherman, *Mental Hygiene and Education*, 1934, 19-23 (Longmans); and references under Resort to Illness, below. Cf. also PA 4 5031; Wendell Johnson, *People in Quandaries*, 1946, 373-374 (Harper).

²⁴ Cf. Anne G. Beck, *J. Abn. Psychol.*, 1934, 29:87-94; Wendell Johnson, *Because I Stutter*, 1930 (Appleton); Symonds, *op. cit.*, 445ff.

starting at a noise or seeming to learn through their ears. These subjects did not participate in games, but stayed apart and sat with a fixed look. Several had a rapid pulse and trembled and perspired easily. As soon as they confessed the deception they relaxed and became normal.

Often confused with malingering is mental disorder, psychoneurosis especially. True, a psychoneurotic paralysis, or a psychotic delusion of illness, may begin as malingering and graduate into psychoneurosis. Moreover, a psychoneurotic person or even a psychotic one may malingere. Nevertheless, a truly psychoneurotic or psychotic ailment is, at the time at least, involuntary. Malingering is voluntary.

Various tests for malingering have been worked out.²⁵

Verbal deceit, fibbing or lying, is common enough.²⁶

Disparagement and ridicule are familiar ways to humble a rival or an enemy.

Lusin (Chou Shujen) observed that "a bee gives a sting and loses its life; a satirist gives a sting and preserves his." Hazlitt said that "we grow tired of everything but turning others into ridicule and congratulating ourselves on their defects." Though fully adult spirits would tire of Hazlitt's program, many lesser spirits resort to it constantly.

Dollard and his associates (1939) thought that anti-Roosevelt jokes were most popular among the people who felt most threatened by Roosevelt's policies. The same authors remarked that in fascist countries, where direct criticism of the government was forbidden, whispered jokes about the dictators were highly valued.

Winning the enemy over to be an ally is the highest form of attack upon a person and yields the best of victories (Spinoza).

In a group of adult Negroes who had suffered humiliations based on race prejudice, many were moved to try to show the whites that the prejudice was unnecessary (Beckham, 1934).

²⁵ Cf. Charles Reade, *The Cloister and the Hearth*, the professional beggar; PA 4 175; M. F. Metzger, *Monatschr. f. Kriminalpsychol.* (etc.), 1914, 10:585-604; John Collie, *Malingering and Feigned Sickness*, 1917 (E. Arnold); Tom A. Williams, *Am. J. Insan.*, 1921, 77:572-575, or *The Military Surgeon*, May, 1921; PA 5 4165, 2734; PA 10 3577; PA 17, etc., index; PA 22 1293; Alfred O. Ludwig, *Bull. U.S. Army Med. Dept.*, 1949, 9:Nov. Suppl. No., 26-32.

²⁶ Cf. Taylor, *Readings*, 605-612; A. R. Luria, *The Nature of Human Conflicts*, 1932, 122-127 (Liveright); PA 2 2104, 2848; PA 4 2396; PA 6 597; etc.

Acceptance is making the most of the situation; one finds out what is good there and enjoys it without being deceived about the rest.

Normal substitution occurs in acceptance, as one turns knowingly from an unsatisfactory to a satisfactory part of the situation; also in any integrated shift of means, goal, or attitude. Such substitution is alternative reaction, which we took to be workable within limits.

A good example was the armless boy described above; unable to use his hands, he used his feet and his head.

In Turgenev's story *The Living Relic*, the lonely invalid turned deliberately from her disappointments and helplessness and concentrated upon the sounds and odors that reached her.

According to L. S. Hollingworth, whenever a boy of two-and-a-half was served with his vegetables, he said: "Danny feels sick. Can't eat carrots. Can eat dessert." Thereupon his mother looked at him objectively and said "Oh, piffle!" and the boy ate the vegetables. One day the mother was too occupied to notice his usual claim. He watched her for a few seconds, then said the magic word himself and went ahead with his meal. After that he accepted vegetables without complaint.

A man who seems to have contradictory traits, such as powerful hands and a gentle voice, may be reinterpreted as having a voice that expresses great reserve (Ichheiser, 1928). Similarly, a failure, or a limitation, may be reinterpreted as a challenge.

Most favorable to successful substitution would seem to be similarity to the original pattern, connectedness with it, and capacity of the new pattern to enlist interest. Thus, within limits, the urge to complete a given task may be assuaged by completing a like task, an associated task, a part of the original task, or a different but absorbing task.²⁷

Direct retreat and indirect retreat, like direct and indirect attack, occur in both normal and abnormal persons.

Direct retreat includes physical flight, also straightforward withdrawals of attention from the too bothersome.

Physical flight is often sensible but in some individuals is stereotyped.

²⁷ Cf. 174-181, above; Hollingworth, cited by Bentley and Cowdry, op. cit., 359; Mary Henle, *Contribs. Psychol. Theory*, 1942, 2:No. 3; Kurt Lewin, in Leonard Carmichael (ed.), *Manual of Child Psychology*, 1946, 821-824 (Wiley).

Four dogs were taken by their master every morning for a romp through the woods. Each strange odor or sound led three of the dogs to pursue it vigorously but turned the fourth dog, more timid than the rest, toward home.

When a boy in his teens was scolded by his employer, he left his job without notice. When he found high school difficult, he stopped school. In the navy, when his barracks mates teased him, he deserted. Each time he went straight home.

Children run away from home to escape naggings, beatings, family quarrels, or other unhappy conditions (Gilpin, 1930; Armstrong, 1932; Schumacher, 1934).

A man who had a wife and several children was sexually vigorous, moral, and attracted to his wife. He was, however, too poor to have more children and too inhibited by church doctrine to practice contraception. Thus his wife became a fearful temptation to him, and his children, an obstacle. He began to dream, then to have waking thoughts, of killing his wife and children. These thoughts became so insistent that he was terrified lest he act upon them, and he fled to a mental hospital.²⁸

Some kleptomaniacs, voyeurs, and other obsessed persons flee from places that arouse their obsessions. One young man could not stop himself from looking into women's bedroom windows. Whenever he felt that impulse coming on, he hurried off to a ball game, a motion picture, or an unsettled area.

Certain sufferers from delusions of persecution move from place to place to escape their supposed persecutors (Hoven, 1930).

Some tramps are always moving away from difficulties.

Often, physical flight is only partial. A graduate student, X, expected to receive a handsome fellowship, but it was awarded to another student, Y. X concluded that a certain professor, Z, had caused that outcome. Consequently, X disliked to meet Z. Whenever a meeting seemed imminent, however, X did not go the other way; only his head turned, automatically, so he could not see Z.

Perhaps catatonia illustrates partial physical flight, in that the patient shrinks into immobility (S. C. Wolff, 1932).

Partial physical flight is often obscured by abnormal preoccupation and self-deception, which we are about to consider.

Indirect retreat includes various physical ruses, much use of malingering and illness, also abnormal preoccupation and self-deception.

²⁸ Cf. John Dollard and others, *Frustration and Aggression*, 1939, 15 (Yale Univ. Press).

Abnormal preoccupation means becoming so absorbed in anything, either a single interest, or a series or scattering of interests, that other important interests are slighted. In other words, it is an unintegrated, hence usually inappropriate, preoccupation.

Such preoccupation may take the form either of attack upon one's main problem, retreat from it, or attack upon a part and retreat from the rest. Commonly, whatever the form, it is not very successful.

Abnormal preoccupation appears whenever one works at a problem until one gets "too close to it" either to solve it or to turn to other important interests. The problem may lie in any field, from the workaday to the idealistic or religious.

For example, in our culture, many persons are sexually unsatisfied and unenlightened, even misinformed. Consequently, their thoughts are turned to sexuality by organic and intellectual hunger and often worry. As Harrington remarked: "If there were a land where it was looked upon as indecent to eat or even think about food, where laws were enacted and social restrictions imposed to keep a large part of the population in perpetual hunger, we should find the inhabitants deeply preoccupied with food. Young men and maidens would lie awake at night ruminating on things alimentary. Smoking-room stories which dealt with this subject would be listened to and snickered at. There would be Peeping Toms prowling about wherever there was a chance to see or smell a roast of beef; while books and plays having to do with the pleasures of the table would appeal to the populace and have to be suppressed by the police."²⁹

Of some 4,000 American soldiers who survived 39 months in Japanese prisons, most said afterwards that, while imprisoned, they thought of no one but themselves. "They forgot their homes, their families, everything—and had but one thought, food." "Religious belief was not mentioned as a sustaining factor." "All of them lived only for the day."³⁰

Abnormal preoccupation occurs also when a person retreats from his main problem through becoming absorbed unduly in something else, whether it be concrete or abstract, and close to or remote from the main problem.

Thus abnormal preoccupation includes many an abnormal resort to reflexes, instinctive reactions, redintegrations, development of special abilities, deceit, disparagement and ridicule, or direct or indirect retreat. It includes also the "self-depreciatory" and "self-appreciatory"

²⁹ Adapted from Milton Harrington, *The Management of the Mind* (Winn, ed.), 1945, 81 (Philosophical Lib.). For an actual culture abnormally preoccupied with food, cf. Ailan R. Holmberg, *Nomads of the Long Bow*, 1950 (Smithsonian Inst.).

³⁰ Adapted from Norman Q. Brill, Bull. U. S. Army Med. Dept., 1946, 5:429-438.

reactions to deprivation remarked by K. A. Menninger.³¹ Moreover, it covers most of the forms of reaction to stress yet to be presented. Still, abnormal preoccupation is noticeable in so many reactions to stress that we list it as a form.

Self-deception means interpreting a situation wishfully rather than realistically. Thus self-deception is a broad heading, like abnormal preoccupation. Indeed, abnormal preoccupation and self-deception are often different aspects of the same process. Self-deception is, however, such an important aspect of many reactions to stress that we list it as another form.

Overcompensation, often called overreaction or simply compensation, and used loosely, we shall limit to abnormal preoccupation with the opposite.

A small girl was told that her mother could earn a living in a strange household and could keep the little girl with her if the child would behave well. Among other things, she was not to play with the floor plugs. She played with them, however, until she blew a fuse and put out all the lights. Upon seeing the owner set to work grimly to repair the damage, the child shouted, "He's laughing! He doesn't care!" (L. S. Hollingworth, *loc. cit.*)

"The lady doth protest too much, methinks."

A devoted father lost his family in an earthquake. He seemed delighted and rode around in his automobile (Kretschmer, 1926, quoting Stierlin).

Fielding remarked that a homely woman's "prudence was as much on guard as if she had all the snares to apprehend which were ever laid for her whole sex. Indeed," he added, "this guard of prudence, like the trained bands, is always readiest to go on duty where there is the least danger." (*Tom Jones*.)

A woman "hates" a certain man because, as her close friends perceive, she will not admit to herself that she has fallen in love with him. The same woman really hates her child but will not face the fact, so she "loves" the child excessively and tensely. Many a woman who will not acknowledge her own sexual desire becomes frigid; a woman or man who feels sexually inadequate becomes sexually demanding; a nervous person, outwardly calm; a timid one, overbold; gloomy, excessively gay; tenderhearted, apparently hardhearted; too susceptible, suspicious; unsympathetic, too sympathetic; socially insecure, snobbish; proud,

³¹ *Volta Rev.*, October, 1923, or *Psychoan. Rev.*, April, 1924.

humble; weak, helping the weak; guilty-feeling, hyperconscientious; uncertain, dogmatic; and so on.

In Middletown, as the economic depression advanced, the people denied it and lauded American prosperity and progress (Lynd and Lynd, 1937).

Perhaps some business "booms" are partly defenses against panic (PA 9 1863).

Irrelevancy we shall take to mean abnormal preoccupation with anything not clearly relevant to the main problem. Here the individual flies not to the opposite, as in overcompensation, but to something aside from his problem.

Thus, a person who is asked a question that is beyond him talks instead about something that he knows; or he parries the question with a joke. The one who has a fault emphasizes something good about himself, or even the fault's humorous aspect.

Often a person suffering pain thinks of other things—present objects, his achievements, enemies, heavenly bliss—sometimes so much that he no longer feels pain. One who is unhappy in any situation, if he does not know how to master it, may react similarly.

A nine-year-old girl developed sex wonderments and fantasies which she thought were shameful. Partly to avoid them, she became so constantly active, talking, and asking questions about everything under the sun that she was classified as a behavior problem.³²

Many an adolescent, faced with a world that seems too much for him, chances upon this or that interest and pursues it without apparent reason (Schwab and Veeder, 1929).

A young person or an adult, when sore beset, is liable to "lose himself" in sports, speeding, tender love, romance, sex, music, art, politics, religion, ritual, good works, duty (Schaffner, 1948), pedantry, bump-tiousness, vanity, doctrinairism, holding to the *status quo*, obsessive symbolic actions, sheer elation or depression (G. H. Preston, 1940), developing some new anxiety as an escape from the main one (Feigenbaum, 1934), flitting from one topic to another, or any absorbing activity, especially if it produces excitement in lieu of normal zest (Janet; Guthrie, 1938).

If, however, the individual is much weakened or inhibited, he may settle upon routine, some part of a task assigned (McClelland and Apicella, 1945), or present details.

Many patients, when committed to a mental hospital, become pre-

³² Cf. Julia Deming, Mo. Bull. Mass. Society Ment. Hyg., 1939, 18:Nos. 5-6.

occupied with their immediate surroundings, details of the regimen, etc. (Dembo and Hanfmann, 1935).

When "Father Divine" ruled over his "Kingdom" in Harlem, many poor and outcast Negroes became happier when they joined the "Kingdom" and practiced "the positive attitude," which meant "constantly thinking of Father and thanking him." To protect this attitude, "Father" ordered his "children" to avoid all newspapers, magazines, books, motion pictures, and radio programs except those recommended or provided by "Father or his Angels." (Cantril and Sherif, 1938.)

Any patterned activity that is used for abnormal preoccupation, self-deception, overcompensation, irrelevancy, or further reactions to stress is abnormally intense, narrow, or shallow. Thus, the maladjusted person, as contrasted with the normal worker, goes into music sentimentally, or into Shakespeare uncomprehendingly, or into the Good Government League fanatically. He does so because, for him, the activity is less expressive than repressive; it is unintegrated or inappropriate for him as a whole, in his whole situation; it is abnormal preoccupation.

Resort to illness, whether the illness be organic, psychogenic, or imagined, is used so often as indirect attack, indirect retreat, or abnormal preoccupation that we list it as an important form of reaction to stress.³³

Valetudinarianism is closely related, in that the valetudinarian is abnormally concerned about his weak or sickly constitution or his invalidism. The term, however, implies resort less to illness itself than to concern about the self relative to illness. Therein valetudinarianism is an important form of reaction. It is also related to self-pity.

Self-pity means retreat from the essential problem to a picture of oneself as unfairly beset and unappreciated. Thus self-pity is a variety of abnormal preoccupation, also of several of the headings that follow; yet it stands out as another important form.

³³ Cf. Edward A. Strecker, Francis J. Braceland and Burgess Gordon, *Ment. Hyg.*, 1938, 22:531-532; Lawrence I. O'Kelly, *Introduction to Psychopathology*, 1949, 525-526 (Prentice-Hall); Preston, op. cit., 72-81; Charles Macfie Campbell, *Am. J. Diseases of Children*, 1916, 12:436-439; English Bagby, *The Psychology of Personality*, 1928, 147ff. (Holt); Douglas A. Thom, *Ment. Hyg.*, 1922, 6:234-242; Walter C. Alvarez, *Nervousness, Indigestion, and Pain*, 1943, 278ff. (Hoeber); Franz Alexander, Thomas M. French, and others, *Psychoanalytic Therapy*, 1946, 99-101, *Studies in Psychosomatic Medicine*, 1948 (Ronald); PA 4 238, 272, 6 4420, 7 5911, 8 364, etc.

Daydreaming is a term often applied to any thinking other than about the task in hand. We shall take it to mean, however, only "wish-fulfillment through imagination."

This definition distinguishes daydreaming from pure play of thought, also from the mental exploration and imaginative problem-solving that we called integrated imagination, which is closely related to reasoning and hypothesis.³⁴ An example of such imagination could be a young girl's thinking what she will say at a party: on the hypothesis that she is there now, such-and-such remarks seem to fit the situation. An author develops his characters similarly. Pure play of thought and imaginatively working out even trivial situations are essentially constructive and often useful. Moreover, they are characteristic of healthy persons, especially of competent artists, scientists, and other creative thinkers. Our definition relates daydreaming less to constructive thought than to unintegrated belief.³⁵

It does not follow that all daydreaming is pathological. Like night dreaming, daydreaming is relatively far from ideal integration and therein is abnormal; but it occurs in perhaps everyone and becomes pathological only in extreme cases. Often, too, it is combined with more constructive thinking.

Daydreams conjure up, in imagination, whatever the individual wishes—food, toys, playmates, school, friends, freedom, love, attention, sympathy, thrills, health, wealth, success, leisure, admiration, expression, or justification, even expression or justification for reactions like melancholy, vengeance, or feelings of guilt. Thus some daydreams are, in themselves, unhappy. When the individual wishes good things for himself, his daydreams are egoistic; but when, as sometimes happens, he wishes good things for another, his daydreams are altruistic.

When wishes conflict, a daydream may express one side of the conflict and repress the other side; the daydream may contain a similar conflict or reflect uncertainty; or it may represent a compromise between the wishes.

The wishes that produce a daydream may be either conscious or coconscious or both. A coconscious wish may remain so during the daydream in that the individual is aware of the daydream and not of the wish that it represents.

According to the evidence, some daydreams themselves are conscious

³⁴ Cf. 390-400, 426-429, above.

³⁵ Cf. 415-424, above.

at some times and coconscious at other times; and some are always coconscious. A coconscious daydream may cause "free-rising ideas" in consciousness, or even hallucinations, automatic acts, or other abnormal phenomena.

Sherman (1934) classified daydreams roughly into two types, the casual, that change from day to day, and the systematic, that recur or resume.

Here are some examples of daydreams:

Two urchins stood looking into the show windows of a candy store. "My window has the most candy," said one. "But mine has the best," the other replied.

Men addicted to tobacco, when without it and marooned in the polar regions, are said to imagine themselves plunging into great piles of tobacco and seizing all they can grasp.

A two-and-a-half-year-old girl moved with her mother and father from a neighborhood where she had various real playmates to another where there were none. Within three days she had an imaginary girl playmate, "Bü." Within the first week there came also Bü's mother, "Dance"; Bü's father, "Mr. Dance"; three more girls, "Jane," "Gog," and "Girl"; and all these persons' friends. The friends were replicas of the real family's friends; for example, when the child was told that Mrs. Brainerd had stopped in during the afternoon, she replied that Bü's Mrs. Brainerd, too, had come to see Bü and Dance and Mr. Dance. Of all the imaginary persons, Bü was the most important; thus, when the child and her parents had ice cream, the situation required four real dishes and spoons, three real servings, and one imaginary serving. (She objected to a fourth real serving because it would reduce the other three.) This train of thought was so rich and coherent that it seemed to approach integrated imagination; but apparently it began as sheer "wish fulfillment."

Children that lack schools daydream of going to school. Those that lack recreation daydream of recreation. An unsuitable curriculum causes the bright child to daydream because he is bored with it, and the dull child, because he cannot come up to it.

Conklin (1935), after questioning nearly a thousand young students, concluded that at least a third of them had imagined at some time that they were not the children of their parents.

Cutsforth (1933) found that blind students who resent being patronized and protected by the seeing have various daydreams of disasters to the seeing, of superiority for themselves, and of emotional retreat from the world into something like religious ecstasy.

A small girl, the youngest of her family, was given to crying at the

least provocation. Her father sought to give her a new point of view by telling her a story. He told of a family that set out in their car to picnic on Green Lake. They found that a washed-out bridge kept them from reaching the lake, so they all sat down by the roadside and cried. Soon another family came on the same errand, saw that the bridge was out, and headed for Blue Lake instead. Several more families did likewise. Finally the smallest weeper said: "I have an idea. Let's stop crying and go to Blue Lake and have a picnic there!" Thus enlightened, her family dried their tears, drove to the other lake, and had a good picnic.

The next day, the child said: "Father, tell me some more—about those funny people—the ones that cried so much.—And Father." "Yes?" The child spoke hesitantly, with a half-ashamed smile: "Make—the littlest one—the smartest."

Shaffer (1936) asked nearly 200 college students to check their experience with a dozen types of daydreams. Most of the students of each sex reported frequent daydreams of mental feats, vocational success, material goods, and sexual activity. Proportionately more men than women had daydreams of physical prowess, and more women than men, of physical attractiveness. At least half of each group often had systematic (recurrent or resumptive) daydreams.

A timid child daydreamed habitually of owning and controlling a lion that terrified everyone else (Anna Freud, 1937). Many a stutterer daydreams of being an effective orator.

Harold Seashore's student Bavelas (1942) frustrated a number of children experimentally. Taking each child alone, he asked the child to draw a man; then he exchanged a clean sheet of paper for the drawing and said, "Draw another man, this time a better one"; and so he continued, giving new sheets and demanding better drawings, ordinarily until the child would draw no more. One girl evoked an imaginary person who called her away from that situation.

Wickes (1927) cited a small boy who ascribed his good deeds to himself and his bad ones to an imaginary playmate, "Sam Slimmer."

Examples of coconscious daydreams, with their effects in consciousness and behavior, are available in the literature.³⁶

Janet, also Mayo, and others noticed that daydreams tend to wax with increased dissociation through fatigue, intoxicants, disease, and so forth, and to wane with increased integration.

Barry's study of respiration during daydreaming (1939) suggests

³⁶ Cf. Charcot, Janet, Prince, and others, respectively, *passim*; also 300ff., 380-384, 423-424, 437ff., above.

that much daydreaming may lower the oxygen content of the blood and so make for more daydreaming.

Daydreams seem variously beneficial and harmful. On the one hand, they protect the individual from greater stress than he is ready to meet; they give him some outlet for pent-up emotion; often they enhance hedonic tone and so help him to resist disease and to progress to better thought and action. At times, the clash between daydreams and reality, upon "waking from the dreams," is stimulating. Moreover, some daydreams set up useful ideals, reveal the individual's problems in a new perspective, encourage attack upon the problems, and suggest solutions. Such problem-solving daydreaming, however, is approaching integrated imagination and reasoning.³⁷

On the other hand, many daydreams get in the way of normal learning; they can embody such abnormal patterns as to make for bad attitudes, bad acts, and mental disorders; and the clash between daydream and reality can frighten the individual back into his dreamworld.

The layman speaks of the person who "has his wishbone where his backbone ought to be."

Bowman (1931) mentioned a young man who wished but failed to be popular in college. Consequently, instead of going to the junior prom, he sat in his room with the light turned down and imagined himself the leading dancer, beau, and conversationalist at the prom.

An unmarried girl, after getting into bed each night, daydreamed of falling asleep in her husband's arms. When she married and had to relinquish that ideal because it cut off the circulation in the real arms, she was unhappy.

In a German concentration camp, the prisoners who had been there longest were most likely to have unrealistic daydreams, even messianic hopes.³⁸

C. Macfie Campbell traced small children's wanderings to their daydreams.³⁹

Healy and Bronner, in various publications, cited youngsters who stole periodically as special experiences and daydreams had linked their recurrent sexual urges with stealing.

Kasanin and Handschin (1941) found 16 unmarried mothers whose pregnancies seemed to express neither general inadequacy, maternal drive, nor sexual love for the men concerned, but repressed incestuous fantasies toward the women's own fathers whom the men symbolized.

³⁷ Cf. 390, above.

³⁸ Bruno Bettelheim, in Theodore M. Newcomb and Eugene L. Hartley (eds.), *Readings in Social Psychology*, 1947, 635 (Holt).

³⁹ *School and Society*, 1923, 18:391-397.

Psychiatrists who examined Leopold and Loeb saw how daydreams and their causes led to the murder of Bobby Franks.⁴⁰

P. L. Harriman (1935) reported a hypochondriacal prisoner whose wishful thoughts came out in olfactory hallucinations.

Solitary prisoners, shepherders, and the like are prone to have imaginary companions who become too real. The Shakers, who held to a routine life, developed thrilling religious fantasies and delusions.⁴¹

The Latin poet Horace told of a man who was "a good husband and neighbor" and "could avoid a cliff or an open well," yet "believed he was witnessing marvelous entertainments." "When he was restored by the resourceful treatment of his kinsmen," he cried out: "Heavens, you have killed me, friends, not saved me;" for his pleasure, "his delightful mistake, was torn from him."

Many persons who have outgrown some daydreams look back upon them as poor substitutes for living.

Daydreams often graduate into abnormal dramatization, cynicism, rationalization, and other reactions that follow.

Abnormal dramatization is daydreaming expressed and propped with gestures, behavior, even costumes and other material aids. Thus it differs from normal dramatic invention or composition as daydreaming differs from constructive thinking.

Three typhoid patients, all of them young boys, spent much time clipping and pasting magazine advertisements of foods.

Erickson hypnotized a woman who liked divinity fudge and suggested to her that he had some on a platter (which was actually imaginary) and that she should help herself. She did so, salivating, swallowing, and using her napkin, with evident satisfaction. Moreover, while she was still hypnotized but was displaced by another subject as the center of attention, she wandered over to the imaginary platter and furtively took more fudge, salivating and swallowing as before.⁴²

Queen Victoria is said to have had her dead husband's change of clothing laid out and a basin of water poured for him every evening for 40 years.

⁴⁰ Cf. Anita M. Mühl, *J. Indiana State Med. Assn.*, 1925, 18:12-15; Maureen McKernan, *The Amazing Crime and Trial of Leopold and Loeb*, 1924 (Plymouth Ct.).

⁴¹ John Humphrey Noyes, *History of American Socialisms*, 1870, 600-612 (Lippincott). Cf. also William Sweetser, *Mental Hygiene; Or, An Examination of the Intellect and Passions*, 1850, 362ff. (Putnam); Morton Prince, *Clinical and Experimental Studies*, 1929, 177-189, or 1939, 234-248 (Sci-Art); Taylor and Martin, *J. Abn. Psychol.*, 1944, 39:293-296.

⁴² *Psychosom. Med.*, 1943, 5:185-187.

Many a primitive mother that has lost a child carries a doll in its stead. Some contemporary mothers do the same. Closely related are all forms of magic.⁴³

Janet told of a young woman who wrote love letters to herself until she half-believed them and wholly deceived her family. When the deception was discovered, she wept bitterly and said the letters had given her much joy.⁴⁴

Sherman (1934) remarked that many adolescents who masturbate and feel guilty about it resort to obsessive handwashing.

Attachment to a mate can be dramatization of avowed normality.⁴⁵

One author concluded that "service, the itch to make the world better," is rooted largely in the "appetite of drama." Unconsciously seeking to "escape from the meanness of his everyday existence, the servit yearns to shine before his fellows and himself, to play a role which is heroic."⁴⁶ Perhaps that analysis holds for many cases.

An American woman who had studied singing became manic and was taken to a psychiatric ward. She thought she had been kidnapped and feared lest she be killed; and she screamed and protested. The nurses suggested that she sing "The Beer-Barrel Polka." "I don't like 'The Beer-Barrel Polka,'" she said, "but I will sing you something else." After warming up with a few scales and arpeggios, she sang in Italian the aria from *Orpheus and Eurydice*, emphasizing especially the phrases, "O law, O death, O cruel decree!" She did not realize until afterwards that the song expressed her situation as she saw it, and the singing, her wish to be a singer.

One morning a three-year-old girl watched her father dress himself. She was fascinated, especially when he tied his necktie. When this was almost finished, however, a sound from downstairs set her off into furious crying. "I wanted to go downstairs with Mother to get breakfast." "Oh, well, run down fast and you can help her now!" "No, I wanted to go down with her!" "Well, you can go down with her tomorrow morning; and this time you can run after her and surprise her." "No, I wanted to go down with her this morning!"

Since she seemed implacable and her father was in a hurry, he said firmly: "Listen, Ruth: Mother has gone downstairs this time, so you will have to run after her and have fun helping her get breakfast. Now stop crying, and scoot!"

Still the storm continued; until, in desperation, the man picked up

⁴³ Cf. William James, *Principles of Psychology*, 2:303-305; John J. B. Morgan, *Keeping a Sound Mind*, 1934, 23 (Macmillan); 19ff., above; PA 2 241, 3 1139, 14 6081; Dollard, op. cit., 45.

⁴⁴ Walter M. Horton, *Am. J. Psychol.*, 1924, 35:32.

⁴⁵ PA 4 2360.

⁴⁶ James M. Cain, *Am. Mercury*, 1925, 6:257-258.

the child, carried her into her room, and plunked her into her crib. "You stay here until you can be good," he said and went out and closed the door.

Within a minute, the child appeared, her cheeks wet with tears, but saying truthfully, "See, I'm smiling!" Then, however, another sound from downstairs set her to crying as before.

Quickly the father returned his offspring to the crib. Casting about for some resource, he remembered a technique called "facing reality." "Ruth," he said, "listen to me: Mother has gone downstairs. Do you understand? She has *gone downstairs!*"

"She has NOT gone downstairs!"

"Oh! Where is she?"

"She's—in her room!"

"Show me."

The child took her father by the hand and led him to her mother's room. "There she is!" she exclaimed, pointing to the middle of the room.

"I'm sorry, but I can't see her."

"She's—in her closet!"

The father opened the closet door, and poked around through the hanging clothes. Then, thinking to be facetious, he picked up a shoe and asked: "Is this she?"

"Yes!"

"All right. Take hold of her hand and go downstairs with her."

The child took the shoe, said "I don't like you," and went quietly downstairs.

Cynicism is a rather generalized "sour-grapes" attitude. Through overcompensation or irrelevancy in thought, the cynic thinks he sees through men's motives and life; he finds them inferior; and he feels superior.

Spinoza spoke of the man who thinks of honor in terms of "its misuse, and its emptiness, and the fickleness of mankind, and the like, whereof no man thinks except through a morbidness of disposition; with thoughts like these do the most ambitious torture themselves when they despair of gaining the distinction they hanker after, and in thus giving vent to their anger would fain appear wise. . . . A poor man also, who is miserly, will talk incessantly of the misuse of wealth and of the vices of the rich. . . . So, again, those who have been ill received by a woman they love think of nothing but the inconstancy, treachery, and other stock faults of the fair sex; all of which they consign to oblivion directly they are again taken into favor by their sweetheart."⁴⁷

⁴⁷ *Ethics*, V, x, note.

Kalil Gibran asked: "What of the cripple who hates dancers? What of the ox who . . . deems the elk and deer of the forest stray and vagrant things? . . . And of him who comes early to the wedding-feast, and when over-fed and tired goes his way saying that all feasts are violation and all feasters law-breakers? What shall I say of these save that they too stand in the sunlight, but with their backs to the sun? . . . And what is the sun to them but a caster of shadows?"⁴⁸

Rationalization we defined in the chapter on Thought as unconsciously specious explication of one's motives; specious through over-compensation or irrelevancy in thought. Rationalizations variously fill up voids in our knowledge, cover unwelcome motives, bolster welcome motives, and combine these functions. To the examples that were given we add these:

E. and R. Horowitz (1938) observed that preadolescent children develop rationalizations for social attitudes that they have adopted unreflectively from their elders.

Erickson and Kubie (1939) traced a young woman's hatred of cats not merely to seeing a cat catch a robin, as she had rationalized, but to her more or less subconscious dislike of rats, which cats like. Similarly, her conscious liking for white rats in the laboratory was a rationalization against the subconscious dislike.

For many years Connecticut laws forbade public labor on Sunday except for humanity. The horse railway company of Norwich scheduled Sunday cars from nine a.m. to six p.m. "for the accommodation of churchgoers." The Bridgeport company ran cars "so that works of charity and mercy could be performed."⁴⁹

In the lush 1920's, according to James West (1945), rural boys in urban colleges were pitied for their "limited background." In the 1930's, during the great depression, similar boys were envied as "true Americans."

When a group of businessmen provide a veterans' organization with a clubhouse, Ellis Freeman (1936) pointed out, the motive may be consciously generosity and, less consciously, to get the veterans to support the business system.

Various nations' rationalizations of their motives for aggressive wars are familiar.

D. L. Adler (1941) asked 37 subjects to rate each of two activities as liked or disliked by himself and by the general population, also to

⁴⁸ *The Prophet*, 1923, 52 (Knopf).

⁴⁹ Edwin Valentine Mitchell, *The Horse-and-Buggy Age in New England*, 1937, 7-8 (Coward-McCann).

undertake one of the activities and leave the other for another subject. Most subjects undertook activities they liked and left for other subjects activities which they themselves disliked. Moreover, most subjects thought that the general population rated the chosen activities lower, and the relinquished ones higher, than they themselves did.

Erickson hypnotized a young man and told him that he, the subject, had observed, and had read in authoritative books, that "all German men marry women who are two inches taller than they are." Erickson explained that the subject believed this absolutely; he might have to defend it; and he would know it after waking. The subject "knew" it so well after waking that he mentioned his belief and, when challenged, rationalized it at length.⁵⁰

Many depressed or elated mental patients call up incidents by which they rationalize their present feelings: "I am depressed because I committed the unpardonable sin. I hoed my garden on Sunday." When the mood disappears, the rationalization is dropped.

Overidentification means so losing oneself in the fortunes of a particular family, group, institution, person, character, or any object, that one unduly takes the object to be oneself. Naturally, overidentification is often helped by dramatization, adopting the speech, manners, attitudes, characteristics of the favored object.

Here, as elsewhere, too much ought not to be made of a particular concept. One may merely imitate or enjoy people, institutions, characters, and things without overidentification. Overidentification begins when integrated appreciation and self-estimation yield to abnormal preoccupation and self-deception. Overidentification is not just misreading an object's particular qualities into oneself, or one's particular qualities into an object; it is misreading oneself into an object.

Some persons enjoy the prestige of their relatives, living or dead, as though it were their own. Many feel superior as they consider their club, regiment, or corporation superior. Many identify themselves unduly with their country, especially when they are abroad.

A neurotic child may not only imitate his parent but overidentify himself with the parent. He may even develop symptoms like those of the parent.⁵¹

A man whose own life was rather barren lived vicariously in a leading pugilist. When the pugilist lost a fight, the man was depressed; but when he won, he was joyful.

⁵⁰ Psychoan. Quar. 1939, 8:345-347; in Tomkins, op. cit., 522-523.

⁵¹ Cf. J. McV. Hunt (ed.), *Personality and the Behavior Disorders*, 1944, 285-286 (Ronald).

Unsatisfied persons often overidentify themselves with interesting persons of real life, art, literature, or sheer imagination.

Typically, a hypnotized subject may be made to overidentify himself, for the time being, with almost any person the hypnotizer suggests.⁵²

A boy who wanted to attend a ball game instead of school telephoned his teacher: "Hello, Miss Brown, my son is very ill and, I am sorry to say, cannot come to school today." "Who is talking?" asked the teacher. The boy replied, "My father."⁵³

In a notorious murder case, a Mrs. Thaw was charged with having been sexually immoral. A young woman whom Frink was psychoanalyzing at the time said that she had dreamed of Mrs. Thaw. He asked her what she thought of her. At once she launched into a vehement defense of the woman. Thereupon Frink suspected, and the sequel showed, that the patient's own sexual history led her to overidentify herself with Mrs. Thaw.⁵⁴

Some parents overidentify themselves with their children. Some fasten their own self-fantasies upon their children and try to make the children come up to the fantasies. Thus, a man who was kept from going to college wanted his son to go and resisted the truth that his son was not college material. A woman wanted to be a stage dancer but could not afford the necessary training. She sacrificed much to make her daughter into one and succeeded; but the daughter broke down under the pressure and had to retire. She in turn had a daughter whom the grandmother set out anew to make into a dancer.

Edgar Allan Poe seems to have overidentified a side of himself with the hero of his story *William Wilson* and another side with his own brother and with William Wilson's double in the story.⁵⁵

When Tiberius began to dread divine punishment for his crimes, "he was deterred from entering the city by a prodigy. He was in the habit of diverting himself with a snake, and upon going to feed it he found it devoured by ants; from which he was advised to beware of the fury of the mob."⁵⁶

Through overidentification, a poorly adjusted child may feel unduly superior to himself in his toys; a carpenter, in an excellent tool; and a locomotive engineer, in his locomotive.

A person may even overidentify himself with someone who is attacking him.⁵⁷

⁵² Cf. Erickson, *Psychoan. Quart.*, 1939, 8:352-353; in Tomkins, op. cit., 528.

⁵³ Maurice H. Krout, *The Psychology of Children's Lies*, 1932, 53 (Badger).

⁵⁴ *Morbid Fears and Compulsions*, 1918, 169-170 (Dodd). Cf. also his 170-174, 179.

⁵⁵ Cf. George H. Green, *Aberystwyth Stud.*, 1929, 11:1-22.

⁵⁶ Suetonius, "Tiberius," lxxii.

⁵⁷ Cf. Erickson and Kubie, *Psychoan. Quar.*, 1939, 8:501.

Introjection, as we shall limit the term, is misreading another person's or object's qualities into oneself. It differs from overidentification in that, in overidentification, one takes the object to be oneself; whereas, in introjection, one takes oneself to have the object's qualities.

The introjected qualities are, of course, good or at any rate welcome ones.

Two soldiers, A and B, were ordered to carry out a dangerous mission in enemy territory. Throughout the journey, A suggested bits of philosophy and practical ideas that made the mission successful. B, however, thought that it was successful because *he* made the needed suggestions.

Some melancholy patients seem to introject others' faults⁵⁸ and misfortunes.

Projection is misreading one's own qualities, characteristic or temporary, into another person or object. Usually one's unwelcome qualities are so ascribed, but welcome qualities seem projectable likewise.

"It takes all my income," said a congressman, "to keep up with my fool neighbors."

A lazy mother, unwilling to admit that she is lazy, represses the thought by maintaining that her daughter is the lazy one.

Of the two soldiers who went on the mission together, A was courageous and B was a coward, but B thought that A was the coward.

A sexually repressed (as distinguished from a frankly self-denying) person may believe mistakenly that the people about him are abnormally preoccupied with sex and are seeking to involve him in it.

One's qualities may be projected into pictured or imagined characters. Bellak (1944) induced such projection experimentally.

Various experiences, real or imagined, are projected upon other persons in dreams. Pierce mentioned a servant girl who came down from her room one morning and asked whether Mr. So-and-so, an old man who lived in the house, had hurt himself badly when he fell out of his bed during the night. She was told that he had not fallen and was asked how she got her black eye. She replied that she did not know. She herself, however, had been heard to fall during the night.

Sufferers from fevers, when delirious, sometimes misread their own physical discomforts into their relatives or other people.

Many a mentally disordered person insists that it is not he, himself, who feels, eats, sleeps, speaks, or acts. Often one patient attributes his own cries to another and demands that the other stop disturbing him.

⁵⁸ Cf. Sigmund Freud, *Collected Papers*, 1925, 4:158 circa (Inst. of Psycho-Analysis).

A person with seriously repressed qualities may hallucinate what has been repressed; for example, hallucinatorily, he sees, hears, or feels immoral acts, or he hears voices accusing him of such tendencies or acts.

Projection may occur also, apparently, for repressed overcompensations. Thus, as Freud pointed out, a man who loves another unduly and develops a self-protective hatred for that other may believe that the other hates him.⁵⁰ It would seem likely that repressive, irrelevant patterns are projected similarly. Likely, in some cases, good qualities are projected to reinforce the individual's morale.

Projection into material objects is not unknown. A poor workman may blame his tools. One of Hanfmann's traumatic cases, when unable to interpret a picture to his own satisfaction, sometimes said "[My] head no good"; but, at other times, "No good picture."

Abnormally criticizing others, criticizing for the sake of criticizing, makes the critic feel relatively secure or even superior. Often, of course, criticism is a normal way to protect or help someone. It becomes abnormal when it is abnormal preoccupation and self-deception against the critic's personal stress.

A mother who is not accepted socially in her community criticizes her daughters at every turn.

Gardner and Pierce (1929) found many college students with inferiority feelings and, among these, many who felt antagonistic to or disappointed in their teachers, fellow students, and families.

One man habitually belittles others. His rivals in work are "stupid"; a motion-picture star, a surgeon, a president, "does very poorly, considering the opportunities he has had"; his own wife is "only a woman"; his father is "childish," and his brother "never grew up."

Another man prides himself on his ability to judge people. A, he observes, has an oedipus complex; B, an inferiority complex; C, a Jehovah complex; and he notices that D analyzes E, and E analyzes D, "each in a way to flatter himself."

When criticism is combined with denunciation, as Middleton (1933) showed, it both sets the critic up and releases his anger.

Abnormally reforming others is abnormal criticism carried out into action. This action releases tension and represents security, often superiority, for the reformer.

Spinoza remarked that everyone likes others to love what he himself

⁵⁰ Cf. Robert R. Sears, *Survey of Objective Studies of Psychoanalytic Concepts*, 1943, 71 (Soc. Sci. Res. Council).

loves and to hate what he hates. "Superstitious persons . . . know better how to rail at vice than to teach virtue and . . . strive not to guide men by reason but so to restrain them that they would rather escape evil than love virtue." Such persons really want "to make others as wretched as themselves" because "the unhappy are comforted by finding fellow sufferers."⁶⁰ We must distinguish abnormal reform from humanitarianism which would strengthen all except, perhaps, some most hopeless cases.

Mecklin observed that "the almost pathological cruelty with which the Puritan fathers persecuted the dissenters was possibly a passionate attempt to silence their own doubts, as has been asserted of the leaders of the Inquisition."⁶¹

A young minister who suffered from sexual conflicts set out fanatically to reform the sexual morals of his community.

Family life, which offers opportunity for understanding and co-operation, is often marked by acute abnormal criticism and reform or attempted reform. Perhaps this is because the critic has pride in his family and is interested in the members' welfare; they are enough like him for him to see their faults and even project his own into them; the members are so closely and continually at hand that their faults become very obvious; and members of a family are not likely to leave when criticized.

For the same reasons, family life often involves scapegoating.

Scapegoating is venting one's irritation upon some comparatively innocent person or other object. Often it is combined with several of the foregoing reactions; but often it is a noteworthy reaction to stress.

Dennis (1928) noticed that when a rat's tail was pinched in a door, the animal squealed and tugged; and, when he failed to get free, he attacked any other rat that was near.

N. E. Miller (1939, 1948) taught rats to strike at one another, as they do in fighting, when given an electric shock; then he confined each animal alone with a celluloid doll, gave the shock, and observed that the rat struck at the doll.

A victim of Nazi persecution said that he could not look at the Nazi flag without becoming so furious that he was rude even to his mother (G. Allport, Bruner, and Jandorf, 1941).

⁶⁰ *Ethics*, III, xxxi, Corollary; IV, lxiii, Note, lvi, Note.

⁶¹ John M. Mecklin, *The Story of American Dissent*, 1934, 47-48 (Harcourt).

Anna Freud (1937) cited a young woman who hated her mother but wished not to, so outwardly loved her mother and hated some other woman instead.

Many a man who feels dominated by his wife or his employer dominates someone else in turn.

Horney, also Frenkel-Brunswik and others, traced instances of hatred for various groups to childhood insecurity. Hatred for the nation, even treason, may have similar roots.

Scapegoating may fall upon the self. A rat, when suffering pain and unable to bite another rat, sometimes bites himself. A monkey, in an acute dilemma, injures himself.⁶² Human beings in like situations, as we shall see, variously castigate themselves and even commit suicide.

Animals and inanimate objects sometimes serve as scapegoats. A mother who kept her two small boys under unreasonable discipline could not understand why they tortured their puppy (Leeper, 1937). A schoolboy kept a piece of wood in his pocket to bite when unhappy. A man resorted to a punching bag.

The classic type of scapegoating was the ritual in which the high priest of Israel transferred his people's sins to a goat and drove the animal out into the wilderness.

Among the ancient Greeks, at Colophon, after a pestilence or other catastrophe, a man "was conducted through the city to take upon himself contamination, and was then driven out." For this purpose, according to Licht (1932), "characteristically the most universally hated inhabitant was sought."

The Navahos, when increasingly frustrated economically and socially, "found," punished, and even executed more "witches" from among their number (Kluckhohn and Leighton, 1947).

Dollard and his associates (1939) reported that, in most years between 1882 and 1930 in the southern United States, as the value of cotton decreased the number of lynchings increased.

David R. Locke (Petroleum V. Nasby), claimed that "the Dimokrasyy" needs "sumbody to look down upon." Accordingly, he said, "ef ther aint no niggers, central committies must furnish em. . . Show yer niggers in a township in the mornin' and the same nite rob the clothes-lines and hen roosts." This technique would "keep us together until our enemies split. . . May the Lord hasten the day."

Everyone knows how the Nazis used the Jews for scapegoats.⁶³

Scapegoats for the general public include criminals, cultural atavists, innovators, reformers, entertainers, creative artists and thinkers, sheer

⁶² Gerrit S. Miller, Jr. *Quar. Rev. Biol.*, 1931, 6:386.

⁶³ Cf. Albert Einstein, *Out of My Later Years*, 1950, 245-253 (Philosophical Lib.).

deviates, governmental officers, political parties, conservatives, radicals, various minority groups, and foreign nations.

The ideal scapegoat, apparently, is relatively accessible; defenseless; closely associated with the natural object of the irritation; bothersome, either intrinsically or by association, as unhelpful, annoying (Zawadzki, 1948), obstructive, threatening, or strange; interesting, or perhaps entertaining, when used as a scapegoat—a very self-possessed person is less suitable than a nervous one; and popular as a scapegoat, so that the scapegoater can fit in with his fellows.

All scapegoating is, as Barzun remarked, like "the Queen in Alice, saying every few minutes, 'Off with his head,' and making the loss of another's head a compensation for the inadequacy of her own."⁶⁴

Much problem behavior, delinquency and crime arises from stress.

Many a young child that feels displaced by a new baby becomes rude, wetting, destructive, or even dangerous to the baby.

A twelve-year-old boy often stole things in school and, when warned and punished, became generally uncooperative. His parents realized that they had been much fonder of his younger sister than of him. They therefore gave him interest and affection without any discussion of morals; and his stealing stopped.⁶⁵

A young boy who had been athletic and popular became so fat that his fellows made him their scapegoat. In order to buy ice-cream cones for them and regain popularity, he began to steal money.

A girl, galled by her name, Pearie Blah, and her family's low standing, became delinquent (Wembridge, 1929).

Charles Darwin wrote in his autobiography: "As a little boy I was much given to inventing deliberate falsehoods, and this was done for the sake of causing excitement. For instance, I once gathered much valuable fruit from my father's trees and hid it in the shrubbery, and then ran in breathless haste to spread the news that I had discovered a hoard of stolen fruit."

Boredom causes many people to gamble (F. C. Davis, 1939).

Pavlov's dogs, when much frustrated by his experiments, attacked the apparatus and the experimenter. Monkeys and children react similarly.⁶⁶

⁶⁴ Jacques Barzun, *Of Human Freedom*, 1939, 31 (Little).

⁶⁵ Abstracted from Norman R. F. Maier, *Frustration*, 1949, 177-178 (McGraw-Hill).

⁶⁶ Cf. Pavlov, *Conditioned Reflexes*, 1927, 290, etc. (Oxford Univ. Press); William Egleston Gault, *Genet. Psychol. Monog.*, 1939, 21:448; N. I. Krasnogorski, *Am. J. Diseases of Children*, 1925, 30:753-768; PA 22 5488.

One child becomes a behavior problem because he is in a grade that is too difficult for him; another child, because his grade is too easy to keep him interested.

Children set fires for excitement, for sense of power, with daydreams of burning some hated person, and so on.⁶⁷

Many become delinquent from family tension (Abrahamsen, 1949).

A Malay who wanted to die, but feared the tabu against suicide, set out to kill others until he himself was killed. Some Europeans and Americans seem to have committed murder in order to be executed.⁶⁸

T. S. Eliot described children whose mother made them feel so guilty that they misbehaved at school in order to be punished, for punishment made them feel less guilty.⁶⁹

Self-castigation, physical or mental, is likewise variously motivated. It can be, in the strict sense of the term, masochistic.⁷⁰ Often, however, self-castigation occurs for sympathy; attention; excitement; escape from stress, especially from conflict or from guilt; overidentification; or reflection of melancholy.

It may also involve various degrees of intent, from merely letting oneself be deprived or hurt to deliberate self-harm.

O. H. Mowrer taught a rat to avoid a severe electric shock by touching a lever that gave a less severe shock. Thereafter, the rat kept touching the lever and getting shocks from it. Some children, when punished for misdeeds, pull their hair, tear their skin, or injure themselves otherwise; and, when they feel tempted again to the misdeeds, they proceed instead to injure themselves in the ways they have learned.⁷¹

A New England woman who felt that she had been undutiful as a child became a most dutiful wife and mother, unable to relax and play.

A man believed that his parents had died early because they had sacrificed much to send him to a good school and were disappointed when he failed to graduate. Throughout the 20 years that followed, he devoted himself to the family business, made it successful, and accumulated a fortune. Then he broke down; apparently because he needed not success but continued self-punishment.

⁶⁷ Helen Yarnell, J. Orthopsychiat., 1940, 10:286.

⁶⁸ Cf. Hugh Clifford, *The Further Side of Silence*, 1916 (Doubleday); Abercrombie, *Inquiries*, 1833, 237; etc.

⁶⁹ *The Family Reunion*, 1939, 72 (Harcourt).

⁷⁰ Cf. 111, above.

⁷¹ PA 14 3481. Cf. also PA 23 4634, 4643; Harvard Educational Rev., Spring, 1947, 133-134.

Some persons seem to hold to failure as self-punishment.⁷²

A physically healthy man took a strong cathartic every month, consciously for organic well-being, but subconsciously for "spiritual" cleansing.

Many a psychoneurotic symptom, apparently, is developed more or less subconsciously for preoccupation against worse trouble, or a means to sympathy, attention, excitement, and the rest, like the forms of self-castigation already considered.⁷³

In melancholia, as Freud observed, the patient represents himself as useless and despicable. At the same time, he often ascribes to himself faults that are characteristic really of someone whom he loves, loved, or ought to love; and he feels less ashamed than victimized. Freud concluded that the patient's self-reproaches develop through narcissistic (self-loving) and ambivalent (both-loving-and-hating) attachment to another person; disappointment in that person; withdrawal of love from him; and yet what we have called overidentification with him, introjection of his faults, and self-castigation as punishment of him. In many cases this punishment takes the form of suicide. On the one hand, "by taking flight into the ego, love escapes annihilation." On the other hand, he went so far as to say that "no neurotic harbors thoughts of suicide which are not murderous impulses against others redirected upon himself."⁷⁴

Apparently, some depressed persons injure themselves to express or to justify their melancholy.

Fatigue results naturally from stress. Fatigue, however, that derives from suggestion or habit belongs under the next heading.

Neurasthenic effects—abnormal restlessness, irritability, anxiety, depression, fatigue, boredom, and staleness—appear not only as symptoms of neurasthenia and of various other conditions but also as reactions to stress.⁷⁵

Psychogenic immaturity occurs in apparently normally endowed persons who, finding the world difficult, fail to grow up to their years.

⁷² Cf. Theodor Reik, *Psychology of Sex Relations*, 1945, 103n (Farrar); Bertram Schaffner, *Father Land*, 1948, 61 (Columbia Univ. Press); Dollard, op. cit., 47-50.

⁷³ Cf. Alexander, French, and others, *Psychoanalytic Therapy*, 116-119, 125-126, for one example.

⁷⁴ Adapted from op. cit., 162, 168, circa.

⁷⁵ Cf., e.g., B. Malinowski, *Sex and Repression in Savage Society*, 1927, 87-88 (Harcourt); Ranson, loc. cit., 7-9.

An intelligent man lived emotionally dependent upon his parents until he was 60. When his parents died, he had to be put into a foster home, though it was not called such.⁷⁶

Regression means, properly, abnormal return to earlier reaction. Thus it is not return to an earlier reaction that fits the person's present life and circumstances; for example, running on all fours when playing with children, or resorting to boyhood camp techniques when lost in the woods. Nor is regression simply an economical reaction. Talking quietly when tired, or lying down and going to sleep when sleep is in order, is not abnormal return to an earlier reaction; and some regressive reactions, such as tantrums, are far from economical. We should also distinguish regression from play, which is normal. Regression is abnormal inhibition or dissociation of later reactions and release of earlier reactions; in other words, it is unintegrated return to some reaction which is natural for the individual in his present abnormal state but is not really appropriate to his situation.

Ribot suggested that regression occurs when the newer associations are disorganized and leave the field free for the older, established associations.⁷⁷ We should expect the older associations to function then when specially aroused.

Many of the foregoing headings cover examples also of regression; for example, many instances of irrelevancy, resort to illness, abnormal dramatization, rationalization, and problem behavior.

Rats and other animals, when difficulties become too great, return to patterns of reactions that are often quite ineffective. Frustrated children regress similarly.⁷⁸

A five-year-old boy, when a baby brother arrived and took his parents' attention, persistently refused to walk downstairs; he crawled down like an infant.

A secretary had a childish tantrum every time her work was criticized.

A young married woman, whenever her husband would not go with her to an entertainment as she wished, coaxed him in a whining baby talk that she had used on her parents.

⁷⁶ Robert A. Young, a lecture at the Veterans Administration, Northampton, Mass., May 28, 1948.

⁷⁷ *The Diseases of Memory*, 1882, 186 (Appleton). Cf. also Taylor, *Readings*, 317-318.

⁷⁸ Cf. Jules H. Masserman, *Behavior and Neurosis: An Experimental Psychoanalytic Approach to Psychobiologic Principles*, 1943, 69-70 (Univ. of Chicago Press); O'Kelly, *op. cit.*, 532-533.

A male graduate student, when he failed to keep up in his work, became absorbed in archery, a boyhood hobby. Some talks with a psychiatrist enabled him to change his vocation and reduce archery to a recreation.

One young man ate well when away from home but at home could eat only soft foods. This proved to be regression. When he was a small child, his older brothers had teased him and made him feel inferior. One afternoon they had made him especially unhappy, until his mother put him in his high chair and gave him soft food, which he liked, in full view of his brothers. Thus he felt emotionally secure over his brothers. Upon understanding what such food had meant to him ever since, he no longer required it.

Another young man, until he understood his situation likewise, could never eat raisins. He, too, had older brothers who had made him feel inferior. As a small boy he went on a picnic and became sick at his stomach. His mother thought that raisins were the cause, so thereafter, at the table, she picked out every raisin from his food.

Leonard, when he became a confirmed phobic, reverted to wearing flowing bow ties, which he had not worn since he was a child (Taylor and Culler, 1929).

Many a person who finds marriage, or vocation, or society more demanding than he had expected returns to be supported, physically and emotionally, by his parents. If his parents are not available, he finds a substitute parent in a relative, friend, leader, group, or institution.

Other persons regress to general suggestibility, irresponsibility, childishness, or even infantilism (Dieterle and Koch, 1937); notably in certain hysterias and multiple personalities.⁷⁹

Some regressions produce bodily symptoms. A woman who thought that her menopause must end the satisfactions of motherhood and her husband's love developed a hysterical pregnancy (by subconsciously swallowing air). Her girth increased tremendously, and she was contented; but when she found that hypnotic suggestion had brought her down to normal size, she was furious.⁸⁰

Fatigue, sleep, dreams, hypnosis, intoxication, illness, or any other disintegration may cause regression. Examples of regression in dreams and in hypnosis we have given before. Alcohol injected into rats released errors that they had learned not to make. In men who had recovered from tetanus, chloroform revived the rigidity until the chloroform passed off. Depression has been found to favor regression.

⁷⁹ Cf. Mandel Sherman and Blake Crider, *Am. J. Psychiat.*, 1933, 12:1085-1094; Taylor, *Readings*, 308-314; and 320, above.

⁸⁰ Cf. George D. Bivin and M. P. Klinger, *Pseudocyesis*, 1937 (Principia); also H. Flanders Dunbar, *Emotions and Bodily Changes*, 1947, 346-347 (Columbia Univ. Press).

Some cases of remitted schizophrenia, when in difficulty, regressed to their psychotic behavior. Rush noticed that many aged Swedes who had not spoken their native language for 50 or 60 years reverted to it upon their death beds. A physician who had been born a Catholic but had become a Protestant in early life said only the Catholic prayers in the delirium of a fever. "Dr. Scandella, an ingenious Italian, was master of the Italian, French and English languages. In the beginning of the yellow fever which terminated his life he spoke English only; in the middle of his disease he spoke French only; but on the day of his death he spoke only the language of his native country." Taine cited a Russian astronomer who lost first his recent memories, then older ones, and so on back to childhood; until he began to recover, when his memories returned in their chronological order.⁸¹

Barker, Dembo and Lewin (1941), in studying regression, concluded that frustration makes a person react more primitively not only in the frustrating situation but also in other contemporary situations; thus, a frustrating home can make a child's schoolwork less constructive.

General inhibition, inhibition that is neither complete nor uniform yet runs through much of an individual's behavior, often results from stress.

When Chips, a small dog, went with his master for a walk in the country, he was always turning his nose this way and that and darting after it freely. When Jerry, a large dog, recognized the two and padded along behind them, Chips trotted quietly beside his master, scarcely moving his head, only rolling his eyes.

Often a small dog, if threatened by a large one, falls down and lies still.

Some children and adults are generally restrained, moving little other than feet and eyes; and some, catatonics especially, become practically motionless. (This does not mean that all immobility derives from stress.)

Apathy, of the sort considered here, seems to be either inhibition or dissociation of emotions and interests as a result of stress.

A school girl felt that her older brother was her mother's favorite, her younger brother her father's favorite, and she herself only

⁸¹ Cf. 257-258, 281, 297-298, 495-496, above; Miller and Miles, 1936; Monier-Vinard, cited on 221, above; Winifred Bent Johnson, 1937; Nolan D. C. Lewis, 1929; adapted from Benjamin Rush, *Medical Inquiries*, etc., 1818, 284-285, 277 (cf. also Laurent, op. cit., 87-88; James H. Leuba, *Monist*, 1901, 11:553-557); Taine, cited in Ribot, op. cit., 123.

"the buffer in any unpleasant situation that arose at home." Deliberately, she became exceedingly indifferent to people.⁸²

A high-school boy lacked affection for his family and everyone else. He had loved his family, one of them especially; but that one died, and thereafter he seemed emotionally detached from all mankind.

Some such persons are passionately fond of music, birds, or postage stamps, but not of people. Others appear emotionally indifferent to everything.

Laziness that is not organic is perhaps inhibition, resignation, or apathy applied to deeds. Obviously, laziness can be used to persecute a disliked individual or group; and, in any event, not to try is not to fail.

Children who had succeeded happily with certain form boards were given some different ones with which they failed. Thereupon, these children did not want to perform even on the easier boards (Skeels, 1933).

Many cases of reaction to stress fall under more than one of the foregoing headings and those that follow. For example, young American Indians or part-Indians who feel frustrated and lost between the declining Indian culture and the rising white culture become variously unruly, immature, inhibited, resigned, apathetic, lazy, stupid, given to intoxication, and, in some cases, suicidal.⁸³

Psychogenic stupidity is a form of what Burnham called pseudo-feeble-mindedness.⁸⁴

Psychogenic stupidity seems to be inhibition, resignation, or apathy applied to the intellectual life. A person may become thus stupid rather mechanically, from conflict or other stress; but he may be stupid also to annoy others and to keep them from expecting too much of him.

A girl of 16 who suffered from nearsighted astigmatism and some aneisikonias was described as rather apathetic, lazy, dull, and asocial. After her trouble was corrected with glasses, within a few months she became eager, bright, and popular.⁸⁵

Morgan mentioned a boy of six-and-a-half who, after being severely

⁸² Anita M. Muhl, *Automatic Writing*, 1930, 55 (Steinkopf, Dresden).

⁸³ Cf. Gordon Macgregor, *Warriors Without Weapons*, 1946 (Univ. of Chicago Press); also, about apathy in whites, PA 8 421, and Ralph R. Greenson, *Psychoan. Quar.*, 1949, 18:290-302.

⁸⁴ William H. Burnham, *The Normal Mind*, 1924, 567-598 (Appleton).

⁸⁵ Cf. Henry A. Imus, *Visual Factors in Reading* (mimeographed), 1939, 18-19 (Dartmouth Eye Inst.).

punished for a naughtiness, was so distrustful, uninterested, and unresponsive that he was considered feeble-minded. Six weeks' constant friendliness from the psychiatrist won his confidence. "He brightened up in school, made his grades easily, and again joined his comrades in play."⁸⁶

Psychogenic sleep is sometimes a reaction to stress. Apparently it is achieved through "letting the world go," perhaps through concentration upon a bit of fatigue, also upon simple sensations like breathing and kinesthesia, and through thoughts associated with going to sleep. Of course it must be distinguished from various epileptic and other nonpsychogenic narcolepsies.⁸⁷

K. M. B. Bridges pointed out that "there are people whose company is literally fatiguing." It is so because it arouses conflicts; conflicts between one's own interests and another's interruptions, one's own speed and the other's, annoyance and courtesy, independence and acquiescence, receiving and giving care, having and granting prestige, and so on.⁸⁸ If any such conflict is not adjusted through learning neither to annoy nor to be annoyed, the fatigue may cause sighs, yawns, and, in extreme cases, psychogenic sleep, fainting, or other loss of consciousness.

Pavlov's dogs, when too much was demanded of them, went to sleep. Men have done likewise under experimental conditions.⁸⁹

A young man had lived an adventurous life, then married happily but conventionally and became a banker. He noticed that he required much more sleep when his wife was at home than when she was away and he could chat with friends or read what he liked.⁹⁰

Rush observed that grief often induces sleep and that many criminals sleep deeply the night before their execution.⁹¹ Some individuals persecuted by the Nazis found relief in sleep (G. W. Allport, Bruner, and Jandorf, 1941). During the war, some English civilians who had been bombed out found a billet with friends, then went to bed and stayed there for weeks. Instead of showing other nervous symptoms, "they simply retreated into sleep."⁹²

⁸⁶ Cited in L. F. Shaffer, *The Psychology of Adjustment*, 1936, 178-179 (Houghton Mifflin). Cf. also Harrington, op. cit., 376-381; Maslow and Mittelmann, op. cit., 542-545.

⁸⁷ Cf. Carl D. Camp, *J. Abn. Psychol.*, 1907, 2:9-21; Smith Ely Jelliffe and J. Norkin, *Am. J. Psychiat.*, 1934, 91:679-692.

⁸⁸ *J. Abn. Psychol.*, 1926, 10:90-101.

⁸⁹ Cf. 207, above; *PA* 11 1744, 13 2858, 9 5688.

⁹⁰ Malcolm M. Willey and Stuart A. Rice, *J. Abn. Psychol.*, 1924, 19:174-178 (Taylor, *Readings*, 299-302).

⁹¹ Op. cit., 319.

⁹² George W. Gray, *Harper's*, 1942, 184:633.

"A slack, shifty, thievish young woman" married an honest working-man. His friends, men and women, would have nothing to do with her. The only good she seemed to find in life was his devotion to her. In the evenings and on the days when he was home, she was happy and alert; but after he left for his work she locked the doors, drew the shades, and dozed throughout the day.⁹³

A mother reported of her small son: Whenever he had been naughty, he "would lie down anywhere, perhaps under the bed, and go to sleep at once, even with his hat and coat on. He always would sleep until I woke him for his next meal."⁹⁴

As Helena said, in *A Midsummer Night's Dream*:

"Sleep, that sometimes shuts up sorrow's eye,
Steal me awhile from mine own company."

Psychogenic fainting occurs likewise; though it must not be confused with somatogenic (organic) fainting.⁹⁵

A young woman asked a psychologist why she often fainted, though rested and well, when things did not go smoothly for her. Through intensive questioning, without formal relaxation or hypnosis, she recalled the source. Her parents died when she was small, and she was taken into a large family of relatives. There she felt rather unloved. One time she was ill and fainted; and everybody was tender to her. Thereafter, the fainting recurred whenever she seemed to need solace. The single conference enabled her to understand the pattern, and she fainted no more.

Resort to intoxication through alcohol or other drugs is a well-known reaction. In Moore's phrase, these substances

"... cut the cords in Memory's net
Allowing the fish-like thoughts to escape and hide
In the thin streams that trickle through the mind."⁹⁶

Intoxication blots out the unpleasant and gives an illusory sense of well-being. As the individual fails to work out his difficulty, however, and as repeated intoxication requires larger doses, he deteriorates.

⁹³ Hamilton, *op. cit.*, 121-122.

⁹⁴ Note 90, above. Cf. also Thomas Verner Moore, *Nature and Treatment of Mental Disorders*, 1944, 239-241 (Grune); PA 8 1089.

⁹⁵ Cf. George L. Engel, *Fainting: Mechanisms and Diagnosis*, 1950 (C. C. Thomas).

⁹⁶ Merrill Moore, *The Noise That Time Makes*, 1929, 103 (Harcourt).

He can crave intoxication apparently without any physiological hunger for the intoxicant (Durfee, 1941). This does not exclude organic factors from all cases. Metabolic defects and deprivations likely induce morbid physiological cravings (R. J. Williams, Berry, and Beerstecher, 1949); and such defects and deprivations certainly limit more adequate reactions to stress. Organic and psychogenic factors are likely to combine in any abnormality.

Masserman (1945) let cats learn to get food from boxes; then he subjected the animals to airblasts whenever they approached the boxes. A number of the animals developed a marked pattern of fear. These he forced to take alcohol with their milk. The alcohol disorganized the fear pattern and made the cats much more comfortable so long as they were intoxicated. When he offered these cats their choice of plain milk and milk with alcohol, about half of them chose the alcoholized milk. When, however, the fear was abolished through retraining, all the cats preferred the plain milk.⁹⁷

A young boy was much loved and protected by his mother, who was a widow. She became an invalid, and from his eleventh year on he slept in her room to care for her. When he was 22, an aunt decided to wean him from his mother and moved him to a distant room. He became sleepless and lonesome and took to drink. He married a motherly, protective woman. He missed something in her affection, however; he begrudged the love she gave to their children; and periodically he became depressed and alcoholic. When psychiatric counsel led him to understand what he had wanted, he improved at once.⁹⁸

A woman, the mother of six daughters, kept herself more or less comatose from alcohol most of the time for three or four years. She had been devoted to her husband. He, however, had blamed her increasingly for not having a son; he came to scorn even her domestic judgments and made all decisions himself; and finally he became so psychotic that he was hospitalized. She both resented her situation and felt that she was a complete failure as a woman. Psychotherapy enabled her to see that she need not feel guilty and that her daughters needed her. She lost her desire for alcohol and became an excellent homemaker, friend, and counselor for the daughters.⁹⁹

A man thought he could not succeed in a field that was open to him. He began to drink. When his father, his wife, and his physician urged

⁹⁷ Cf. also PA 18 438, 1680.

⁹⁸ Cf. C. Macfie Campbell, *Am. J. Diseases of Children*, 1916, 12:427-428.

⁹⁹ Cf. Helen Vincent McLean, in Alexander, French, and others, *Psychoanalytic Therapy*, 269-277.

him to stop drinking and become successful in that field, he drank more; until he understood that his drinking was largely a protest against being urged to do what he thought was impossible.¹⁰⁰

Addiction to intoxication arises also from social custom; as do some other abnormalities.

Suicide may reflect various types of stress. It may result also from depressive organic states; and, in unstable persons, from imitation or other suggestion. We are concerned with suicide that results from stress.

Suicide may involve any degree of intent. Some cases represent carelessness from lack of will-to-live. At the other extreme are cases of deliberate will-to-die. Thus suicide is continuous with self-castigation, considered above. It may also involve scapegoating, making the self the scapegoat; abnormal dramatization; indirect attack, as a means of controlling another person; retreat; and other reactions.

Apparently, one man committed suicide because his business failed; another, because the bank of which he was an officer failed and he had been dishonest in handling the funds. Of seven cases reported by a New York paper one day, according to Dublin and Bunzel, "one was depressed because he had lost his job; two feared blindness; two were ill, one with cancer, the other suffering from a paralytic stroke; one was hopelessly in love; and the last was a widow despondent since the death of her husband." Probably every case derives from several motives, often including subconscious motives. Suicide notes are often rationalizations.¹⁰¹

Special dissociation as a reaction to stress takes countless forms and teaches much psychology. Since, however, we devoted a chapter to dissociation and have touched upon it in other places, here we shall only outline a few principles and examples.

Special dissociation as a reaction to stress is *psychogenic*, not organic; though it may rather easily be confused with organic dissociation.

Moreover, regardless of how consciously it began in a given case, such dissociation is essentially *subconscious*. Therein it differs from conscious deception, including malingering.¹⁰² This does not mean

¹⁰⁰ Cf. Lewis R. Wolberg, *Psychoan. Quar.*, 1945, 528-534.

¹⁰¹ Cf. Louis I. Dublin and Bessie Bunzel, *To Be or Not to Be: A Study of Suicide*, 1933, 3-16, 267, 277-301 (Smith and Haas); PA 6 1041; Merrill Moore, *New England J. Med.*, 1937, 217:291-303; George N. Raines and Samuel B. Thompson, *Digest Neurol. and Psychiat.*, 1950, 18:97-107.

¹⁰² Cf. 514-515, above.

that the line is always easy to draw between special dissociation and malingering.

Special dissociation seems to result whenever the organism either lacks energy to meet the world otherwise, suffers excessive conflict, or has learned and found satisfactory this reaction to stress. Thus, the organism is like a group of men: When the men are able and aroused to work together for a common interest, they do so; but when they are too weak, or have too strongly divergent interests, to work together, or have found it more profitable not to work together, at least one subgroup splits off and follows its own interest regardless of the rest.¹⁰³

Harrington (1934) cited Rabelais's story "The Man Who Married a Dumb Wife." The man got a surgeon to release the wife's tongue; whereupon she talked incessantly. Distracted, the man sought to have the operation reversed; but when that proved impossible, he got the surgeon to make him deaf. Thus he was able to live apart from hearing.

The heroine of Lorna Ray's *The Happy Prisoner* (1932) recovered her hearing, then recovered her deafness to escape hearing mean remarks.

In the First World War, many a soldier's functional deafness arose from the wish to escape battle, suggestion from the momentary deafening of an explosion, and especially any experience of organic deafness. One soldier became functionally deaf while he was the only Englishman in a German prison; he ceased to pay attention to what was said, as he could understand nothing, and in time he ceased even to hear the conversation of his companions. His deafness was cured by psychotherapy a year later.¹⁰⁴

A young woman had had a course in abnormal psychology without believing all of it. One day she was invited to witness a major surgical operation. As she was interested and supposed she was not squeamish, she watched everything until the major cutting began. Soon the center of the room, including the patient and the operating table, became for her a complete blank or fog. Recalling what she had learned about negative hallucinations, she said to herself: "My God, it works!"

Soldiers developed functional blindness from wish combined with the experience of blindness, perhaps from a dazzling explosion, especially when terrified.¹⁰⁵

A healthy man awoke one morning wholly blind to objects, though he could distinguish light from darkness. He had no insurance or other

¹⁰³ Cf. 207-211, 218-223, above; Bernard Hart, *The Psychology of Insanity*, 1916, 164 (Cambridge Univ. Press).

¹⁰⁴ Arthur F. Hurst, *The Croonian Lectures on the Psychology of the Special Senses and Their Functional Disorders*, 1920, 60ff., abstracting from 64 (Oxford Univ. Press).

¹⁰⁵ *Ibid.*, 90.

economic motive for becoming blind; indeed, he lost his job because of it. For 15 years, however, he had been unhappily married and often wished that he could never see his wife again. He had always submitted to her, as he thought he should, except in his dreams. One day he resolved secretly to take his three children, accept a position in another part of the country, and see her no more. This plan to go against his wife and his principles startled him; yet he finished his day's work, and that night he slept well. He woke up blind. Thus he could neither go away nor see his wife. He felt relieved, even victorious; and his wife became kinder to him. After 10 weeks, various physical examinations having revealed no defects, he was given some dream analysis and psychological enlightenment. On the fourth day of this treatment he realized that his blindness had changed both his own and his wife's attitudes and that to be blind was not his best way to live. At once he was cured. Moreover, he undertook willingly, he said, to live with his wife.¹⁰⁶

Erickson hypnotized a young man and commanded him to find and read one of his roommate's love letters. Although the letter was easily accessible, the subject overlooked it again and again and hunted in the wrong places. Eventually he was forced to find it and open it. He then said he could not read it because he had mislaid his glasses. In searching for them, he mislaid the letter. When he had both his glasses and the letter, through great urging he opened the letter but exposed only the blank pages; he turned the pages over but upside down; and at last he got the pages right side up. Thereupon, spontaneously, he became blind. Suggestion cured the blindness, but it returned when he was told to read the letter.¹⁰⁷

Janet recorded cases of psychogenic blindness to everything, though usually not to real dangers or special interests; blindness in one eye; blindness in one eye by itself but not when combined with the other eye; contracted or narrowed field of vision, usually except for real dangers or other interests; hemianopsia—blindness to half the field; and dyschromatopsia—blindness to all colors, or to certain colors idiosyncratically.¹⁰⁸

Psychogenic anesthetics of the skin are well known. Janet noticed that some anesthetic areas bleed, perspire and react to a silver solution differently from the normal areas on the same person.¹⁰⁹

¹⁰⁶ Cf. Thaddeus Hoyt Ames, *Psychoan. Rev.*, 1913, 1:55-62.

¹⁰⁷ *Psychiatry*, 1939, 2:406-407. Cf. also Lewis R. Wolberg, *Hypnoanalysis*, 1945, 226 (Grune); PA 8 5934.

¹⁰⁸ Cf. *The Major Symptoms of Hysteria*, 1907, 182-207 (Macmillan).

¹⁰⁹ Cf. *The Mental State of Hystericals*, 1901, 11-12 (Putnam); A. Pitres, *Des Anesthésies hystériques: Leçons recueillies par M. le Dr. Davezac*, 1887. (Gounouilhou, Bordeaux); etc.

Apparently, tactual and kinesthetic anesthetics help to account for various patients' illusions that an arm seems to be cut off at the shoulder; the legs are shortened and the toes are glued to the knees; a limb is both painful and absent; and an arm is that of someone else.¹¹⁰

Pinel mentioned somewhere a priest who developed enough "absence" to feel no pain when he was burned.

Janet and other students have described anesthetics of the feelings for hunger, thirst, elimination, sex, fatigue, etc. For these interesting and important phenomena excellent accounts are available.¹¹¹

Any of the anesthetics may be more or less local, general, or systematic (of a particular system, like hearing English but not German).

Comparable to the psychogenic anesthetics are psychogenic paralyses.

A nervous house painter, hard at work, feels very tired in his right hand; and in a few days the hand is paralyzed. A girl uses her right arm to support a dying relative; her whole right side is tired and she is distressed when the relative dies; and within four days her whole right side is paralyzed. Some patients are able to jump, hop, and dance, but not to walk; some can walk but not stand; some can sing aloud, but must speak in whispers; and so on. As remarked earlier, a functional paralysis may be more or less local, general, or systematic.¹¹²

Contractures, tics, and stereotypies occur likewise. Often they are reactions that were strongly impressed during a period of stress and have been enough dissociated to be uncontrolled.¹¹²

Special dissociation appears also in "mental compartments." Don Quixote tested his steel helmet, but not his cardboard one. Cotton Mather believed in Christianity and in persecuting the Quakers. A "hundred-percent American" blames "the radicals" for defying law and order and says that if he could he would tar and feather every one of them. A paranoiac believes he is king and scrubs the hospital floor.¹¹³

More clear-cut is psychogenic amnesia. Typically, the amnesia covers some special stress: for a soldier, seeing his best friend beheaded by a shell; for a daughter, seeing her beloved mother die; for a husband, learning that his wife was unfaithful; and for a wife, a hard life with an unsympathetic husband. When Erickson finally got the young man to read the letter that belonged to his roommate, he was unable to remember any of it. A fifty-six-year-old patient suffering from paresis

¹¹⁰ Janet, *The Mental State of Hystericals*, 56-57.

¹¹¹ Cf. *The Major Symptoms of Hysteria*, 227-244; etc.

¹¹² Cf. Janet, *The Major Symptoms of Hysteria*, 138-150, 177-178, 217, etc.; his other works, passim; Binet and Féré, *Animal Magnetism*, passim; Philip L. Harriman, *J. Abn. Psychol.*, 1935, 29:455-456; 460-461, above. Cf., however, Ernst Herz and Tracy J. Putnam, *Motor Disorders in Nervous Diseases*, 1946 (King's Crown Press).

¹¹³ Cf. Floyd L. Ruch, *Psychology and Life*, 1948, 491 (Scott); also 202, 419, above.

was amnesic for everything since his twenty-ninth year, when he contracted syphilis. Spes phthisica, the rosy outlook of some tubercular patients, has been ascribed to dissociation, amnesia for the undesired. Electric-shock treatments are often followed by amnesia for the events surrounding the shock.¹¹⁴

A boy of ten who suffered from sexual conflicts became unable to spell "girl," "mamma," "woman," and related words, many of which he had known perfectly. When his conflicts were worked out, his spelling ability returned.¹¹⁵

Special dissociation appears further in various obsessions and compulsions, including symptoms from coconscious processes; "lapses," "oversights," and other subconscious actions from conflict; sleepwalking; fugues; automatic writing; automatic drawing; automatic speech; multiple personality; delusions; etc.¹¹⁶

Noticeable in many of the foregoing phenomena is *systemization*.

Functionally deaf ears are likely to be anesthetic to touch. Anesthesia and amnesia for a particular function run so parallel as to seem different aspects of the same loss. Anesthesia ties in likewise with amyosthenia (muscular weakness), paralysis, contracture, tic, stereotypy, and abulia; each such muscular disorder reflects a particular amnesia; various dissociations of a given topic, period, or mood tend to organize themselves into one disparate system; and a disparate system is likely to find some support from consciousness in rationalizations at least.¹¹⁷

All stressfully disconscious patterns seem *foreign* to the individual's dominant consciousness. Any organic anesthesia, paralysis, or other loss the patient is likely to regret and submit for treatment. A psychogenic

¹¹⁴ Examples from Edward A. Strecker and Kenneth E. Appel, *Discovering Ourselves: A View of the Human Mind and How It Works*, 1943, 263 (Macmillan); J. Allen Gilbert, *Welfare Mag.*, 1926, 17:44-57; Erickson, *Psychiatry*, 1939, 2:407, and a personal communication; PA 5 350, 16 1650; Joseph Zubin, *J. Personality*, 1948, 17:33-41. Cf. also Douglas A. Thom, *Ment. Hyg.*, 1922, 6:237; PA 10 1470, 21 3062; Erickson and Erickson, *J. Gen. Psychol.*, 1941, 24:113.

¹¹⁵ Cf. Lee Edward Travis, *Psychoan. Rev.*, 1924, 11:175-179 (Taylor, *Readings*, 622-625).

¹¹⁶ Cf. PA 4 1151; 438, above; Janet, *The Mental State of Hystericals*, 493-494, etc.; Taylor and Culler, loc. cit., 348; Erickson, *Psychiatry*, 1939, 2:408; 290-323, 338, above; Mühl, op. cit., 106ff.; Taylor, *Readings*, 431-434; Newbold, *Pop. Sci. Mo.*, 1889, 49:516ff.; Janet, *The Major Symptoms of Hysteria*, 225-226; Clara Harrison Town, *Psychol. Clinic*, 1908, 1:198-209.

¹¹⁷ Cf. Hurst, op. cit., 8ff., 68-70; Wilhelm Stekel, *Frigidity in Woman in Relation to Her Love Life*, 1926, 2:63 (Boni and Liveright); Janet, *The Mental State of Hystericals*, 111-116 (Taylor, *Readings*, 350-354), *The Major Symptoms of Hysteria*, 183, 243, 249, etc.; 279-285, above; Erickson, *Psychosom. Med.*, 1943, 5:51-58; etc.

loss, however, does not trouble him as a loss; indeed, he may be ignorant of it, or feel relieved because of it, or actively despise or mistreat the dissociated part of him. It may trouble him as an alien thing or the instrument of an alien force.¹¹⁸

Many disconscious patterns, of course, show *some connection with the dominant consciousness*: a strong conscious interest arouses the dissociated function somewhat, or an aroused dissociated function makes some impression upon the dominant consciousness, in ways that have been indicated at many points.¹¹⁹

Commonly, dissociation is more or less *variable*.

The typical patient with Lasègue's syndrome cannot move a limb unless he first sees it; he is paralyzed in the dark, or with his eyes closed. Usually, however, when he sees and starts the limb, it goes on moving automatically; and sometimes he can start it if he observes its outline under the covers, or notices its shadow, or forms a clear image of it, or learns somehow just where it is. He may also be able to move the limb without looking at it in certain rooms or at certain times.¹²⁰

Similarly, a dissociated patient's limb may be anesthetic, hyperesthetic, amyosthenic, contractured, or given to tics or to stereotyped movements, except when he looks at it. One patient was anosmic (unable to smell) except when he looked at his nose in a mirror.¹²¹

In many cases, any form of attention to a psychogenic symptom reduces it; but in other cases, attention increases the symptom.¹²¹

Psychogenic symptoms often disappear for so long as the patient is asleep, intoxicated, emotionally worked up, abnormally preoccupied, lost in reverie, stirred by special associations, hypnotized, about to have a hysterical attack, or having an attack; for example, a patient may be dumb except when dreaming, having an attack, or otherwise specially dissociated. On the other hand, some patients' symptoms are exaggerated during those several conditions.

Often a patient's symptom-pattern, for instance, a pattern of anesthesia, is different after an attack from what it was before.¹²¹

Many patients are either cured or outgrow their symptoms; but some keep the symptoms throughout their lives. "Ler.," said Janet, "has

¹¹⁸ Cf. Janet, *The Major Symptoms of Hysteria*, 146, 160-161, 174, and elsewhere; 278, above; etc.

¹¹⁹ Cf., e.g., 204-205, 225-226, 278, 312-313, 323, 353-354, 370-371, 381-385, 417-418, 463, 548, 550, above; Janet, *The Major Symptoms of Hysteria*, 169, etc.; Alfred Binet, *On Double Consciousness*, 1889-90, 19-29 (Open Ct.).

¹²⁰ Cf. Janet, *The Mental State of Hystericals*, 166-179; Isador Henry Coriat, *Bost. Med. and Surg. J.*, 1907, 157:47-48, 751-754.

¹²¹ Janet, *The Mental State of Hystericals*, 178-184, 489, *The Major Symptoms of Hysteria*, 125-126, 164-168, 224; Prince, *The Dissociation of a Personality*, 1908, 149 (Longmans).

kept a hemianesthesia and a contraction of the visual field for forty years," and "Aurel. is still hemianesthetic at seventy-five."¹²²

Evidently, special dissociation occurs in various *degrees*. As we said earlier, the disconnection may be complete or partial, momentary or persistent, and reciprocal or nonreciprocal.

Such degrees appear during the development of, for example, a psychogenic anesthesia: the patient's sensitivity in a given area declines as he becomes rather uninterested in excitations of that area, then disinterested in them, and finally oblivious to them. Extreme heat, cold, or other noxious stimuli arouse the usual protective circulatory and pupillary reflexes; but psychogenic deafness, at least, may occur without the more obvious reflexes of startle.¹²³

Allochiria seems to represent some anesthesia combined with memories of sensations from the symmetrically opposite receptors.¹²⁴

Delusion, seriously unintegrated false belief, like illusion and hallucination, derives from external, sensory, and central factors, but especially from the central factors, conscious and subconscious.¹²⁵

As reactions to stress, various delusions embody disparagement and ridicule, retreat, abnormal preoccupation, self-deception, overcompensation, daydreaming, rationalization, overidentification, introjection, projection, scapegoating, regression, and other reactions.

During World War II, when Japanese-Americans were mistreated and imprisoned and could not hope for civil rights here, they began to believe that Japan would win and would welcome them back to her shores (A. H. Leighton, 1945).

A stupid, naïve boy was much ridiculed and persecuted by his fellows. Consequently, he felt inferior; and, so far as possible, he avoided the other boys and stayed with his invalid mother. She led him to think that he was superior to the others and that superior persons are always persecuted.

When he was 17 his father died. The boy was glad to get away from his tormentors and to work to support his mother. He was too poorly equipped, however, to hold any position long; so again he felt inferior.

¹²² *The Major Symptoms of Hysteria*, 163-164.

¹²³ Cf. 205-208, above; *The Mental State of Hystericals*, 47-48; *The Major Symptoms of Hysteria*, 160-161, 189; Erickson, J. Gen. Psychol., 1938, 19:127ff.

¹²⁴ Cf. 357, above.

¹²⁵ Cf. 376-387, 420-421, above.

He sought counsel from his mother and concluded that his first employer, with whom he had had words, had prejudiced all the later employers against him.

He managed to borrow some money, learned telegraphy, and became a train dispatcher. Often he imagined that he might be a divine being. One time an emergency kept him on active duty for 30 hours. Then, according to his account, he lay down on a couch in his office to rest. The Angel Gabriel appeared to him and told him that he, the persecuted one, was the Son of God sent to redeem the world a second time. This could not have been a dream, the subject said, for it was vivid and explained all his trials. He therefore believed the vision and continued to believe it.¹²⁶

A patient who cannot remember his experiences from one moment to another is likely to fabricate, without realizing it, "memories" to cover up his defect.

Some patients, when committed to a hospital, believe that they are not insane, or even that they are not hospitalized (Dembo and Hanfmann, 1935). Many a patient thinks that he is an official of the hospital, or that he is a resident in a hotel.

When a hypnotic subject was kept from carrying out a posthypnotic suggestion, he developed temporarily a delusion that he had carried out the suggestion (Erickson and Erickson, 1941).

A delusion that one is superior seems protective against inferiority; that one is persecuted, against unimportance; being punished, against guilt; made of glass, against fleshly temptations; and nonexistent, against all problems.¹²⁷

A woman, 63 years old, thought that "the land, the sea, the houses, all the people, everything in the world, the whole world, is made of imitation tin."¹²⁸

An everyday form of delusion, one that has been studied experimentally, is rumor.¹²⁹

Suspicion is often a step toward delusion and develops from essentially the same factors.¹³⁰

¹²⁶ Cf. English Bagby, J. *Abn. Psychol.*, 1923, 18:271-272, *The Psychology of Personality*, 126-128.

¹²⁷ Cf. also 519-520, 525-526, 532-533, above; Ernst Kretschmer, *Hysteria*, 1926, 101-106 (*Nerv. Ment. Dis. Pubg. Co.*).

¹²⁸ Edward A. Strecker, *Beyond the Clinical Frontiers: A Psychiatrist Views Crowd Behavior*, 1940 (Norton).

¹²⁹ Cf. Floyd H. Allport and Milton Lepkin, *Morale Seminar... Research Series*, 1944, No. 3 (mimeographed, Syracuse Univ.); Gordon W. Allport and Leo J. Postman, in Newcomb, Hartley, and others, *op. cit.*, 547-558.

¹³⁰ Cf. Maurice Levine, *J. Med.*, 1938, 19:No. 4; Freud, *A General Introduction to Psychoanalysis*, 1920, 213-218 (Boni) (in James Grier Miller, *op. cit.*, 70-73).

Abnormal compromises and confusions resulting from stress are various. They include rather simple *decrements* and *oscillations*, everyday *lapses* and *self-betrays*, certain *abulias*, and further types.

A small boy felt that he ought to help his older sister carry her suitcase, but he also wanted to go elsewhere to play; so he helped halfheartedly.

A girl, wishing both to call on her grandmother and to go to a motion picture, hesitated between the two until it was too late to do either.

A man was always irritated by a Mrs. B. He liked her husband immensely, however, so he wished to "keep in" with the family. One time he had to pass Mrs. B.'s house, saw her sitting on her veranda, and felt required to "nibble Mrs. B.'s bait and spend an impatient half-hour on her veranda." When he arose to go, intending to say the usual thing, he actually said in a polite tone: "I'm so sorry that you were on the veranda as I was going by."¹³¹

Freud wrote: "Maeder tells of a lady who, the day before her wedding, forgot to try on her wedding dress and to the despair of her dressmaker only remembered it later in the evening. She divorced her husband soon after. A lady, now divorced, frequently signed her maiden name many years before she resumed it." A woman described by Hadfield protested that she and her husband were devoted to each other; nevertheless, she forgot to meet the train by which he was returning after a week's absence, she dreamt that some harm had come to him, and she had a habit of unconsciously moving her wedding ring on and off her finger as she talked. "It turned out that she was all the time in love with another man."¹³²

A woman made herself and her husband miserable, when they were together, with her claim that they "ought to be emotionally independent of each other." When, however, either one went away for more than a few days, the wife was so unhappy that she got her husband to join her and try to live with her again.

A young professional man bought a hat, put it on, and started home. At once he began to feel that he had done wrong. He continued on his way, arguing with himself that it was all right to have bought the

¹³¹ Adapted from Edwin B. Holt, *The Freudian Wish and Its Place in Ethics*, 1915, 36 (Holt).

¹³² Adapted from Freud, *A General Introduction to Psychoanalysis*, 39-41; J. A. Hadfield, *Psychology and Morals*, 1923, 118-119 (Robert M. McBride). Cf. also Freud, *Introductory Lectures in Psychoanalysis*, 1922, 42 (Allen and Unwin), and *Autobiography*, 1935, 55-56 (Norton); Taylor, *Readings*, 442-445, 395-405.

hat; but eventually he was so distressed that he turned back to exchange the hat for another one. Now he felt that this would be wrong. By the time he reached the store he decided to keep the hat, so again he set out for home. He did not get very far before he felt so guilty that, finally, he returned to the store and exchanged the hat. He vacillated likewise about a new checkbook that he got from the bank; also about joining a certain regiment. In each case he felt guilty but could not say why. According to Frink, he was a highly moral person whom everyone liked and respected.

Through analysis, Frink learned that the hat had a red bow inside. To the subject, the bow looked like a splotch of blood, and wearing the hat suggested "blood upon his head." The checkbook was red and suggested "blood upon his hands." To join the regiment meant that "he might kill someone." As a boy, he had been extremely jealous of his brother. Often he had wished the brother were dead, and once, in a fit of anger, he had nearly killed him. This guilty memory he had repressed. Recently, he had been disappointed in love. The circumstances had aroused his resentment and hostility toward the young woman and especially toward his own father. This last reaction was largely a revival of his early attitude toward his brother. His vacillation and sense of guilt reflected the conflict between his conscious morality and his unacknowledged impulses.¹³³

When a small girl first went to school, she was accustomed to go half a block and then go back to ask her mother if she felt all right, if she felt she would die before the child returned from school, if she were pleased, if she thought anything would happen, and so on; and sometimes she repeated this performance two or three times before she arrived at the school. In her later 'teens, she continued to be solicitous for her mother; yet she had tantrums in which she bit and scratched her mother, and called her "fool" and "devil." In her early twenties, she asked her mother such questions as, "Mamma, do I wish you were dead? Would I rather have someone else for my mamma? I don't mean that, do I? Is it just a bad thought?" Sometimes she felt that the devil made her think such things. At 25, she suffered from a morbid fear of contamination; sometimes she spent eight hours out of the twenty-four in her ablutions. Campbell ascribed her symptoms largely to an antagonism to her mother which she had failed to acknowledge and work out.¹³⁴

¹³³ Cf. Frink, *op. cit.*, 286ff.

¹³⁴ Abstracted from Campbell, *Am. J. Dis. of Children*, 1916, 12:430-431. For like effects induced experimentally, cf. Erickson, *Psychoan. Quar.*, 1939, 8:339-345 (Tomkins, *op. cit.*, 517-522).

Such combinations of love and hate are called *ambivalence*. Ambivalence and other abnormal compromises often appear in mental disorders.

In a mental hospital, on visiting day, C. greeted his mother with tender words alternating with shouted curses and obscenities. H. often greeted his wife with love in his face and gestures but with hate in his speech, ordering her away, cursing her, and calling her the vilest names. A deaf onlooker would have thought he was glad to see his wife. At other times he met her with violent hate in face and gestures, meanwhile voicing honeyed endearments. A blind listener would have gathered that the man loved his wife. He also sometimes voiced in joyous tones, and with laughter, bitter complaints; or, miserably downcast and sobbing, he uttered joyous thoughts. Sometimes his face, gestures, and speech were harmonious. R. said: "I'm alive because I'm dead. I'm dead because I'm alive." "I want to go home, so I stay here." "Nothing seems real to me because it is real." "I'm here, ain't I? Well, that proves I ain't here." L. claimed to have thoughts that he was just ready to express when they got taken away from him. "It's like having a manuscript you are ready to read and suddenly the manuscript rolls up and disappears." S. observed: "I start to say something and that hypnotic power just takes it out of my mind or puts something in its place."¹³⁵

Perhaps some cases of *approximate answers* are abnormal compromises between answering and not answering questions.

H. was asked how old he was. When he did not answer, he was asked what question had been put to him. He replied: "When were you born?" He was asked whether he had ever worked as a salesman, and he said he had been asked whether he had worked in a drug store. He multiplied 7×9 as 64; 8×9 , 73; and 9×9 , 82. In serial subtraction from 100 by 7's he was always one or two units off. He pointed to his index finger either as a thumb or as the middle finger.¹³⁵

Occupational cramps are not uncommon.

For example, Tom A. Williams showed that writer's cramp can be a compromise between writing and some opposed act.¹³⁶

Stage fright, in some cases perhaps only a conditioned fear, in many cases represents conflicting motives.

¹³⁵ Communicated by Milton H. Erickson.

¹³⁶ Cf. J. f. Psychol. u. Neurol., 1912, 19:Heft 2/3 (Taylor, *Readings*, 731ff.). Cf. also Leo Bernard Fagan, Psychol. Rev. Monog., 1932, 43:67-71; Israel S. Wechsler, *The Neuroses*, 1929, 209-212 (Saunders); PA 6 4044, 8 2605.

Stuttering embodies various types of abnormal compromise and confusion. Essentially, stuttering is serious discoordination of speech through various cramps and spasms of any of the relevant muscles. In many a case, however, further muscles, and even blushing, blanching, and other signs of emotion, are so involved that the victim seems to "stutter all over."

Stuttering differs considerably from individual to individual and often in the same one from time to time.

Some individuals stutter on only certain sounds, words, or intensities. Others stutter rather generally.

Of 200 stuttering schoolchildren, Blanton found that "22 were worse at school than at home; two were worse in town than in the country; one was worse on vacations; five varied with their physical conditions; 16 were given to complete remissions in stuttering; one stuttered only in school; one, only in Polish; one, only in speaking to his father; one, never while at play; one, never with members of his own sex; one got worse at intervals of three or four days; one was markedly worse after sleep, even a short nap; one was worse after an operation for adenoids and tonsils (undertaken to cure the stutter); one stuttered for three weeks only; and so on with such variations for virtually the entire group."¹³⁷

Many resort to "starters" like "Now," or "Ah."

Most stutterers can sing and can recite poetry without stuttering. Many stutter badly when talking to one or two people but speak easily to a large audience. Many can talk naturally into a telephone until the receiver at the other end is taken off the hook, whereupon they begin to stutter.

According to various estimates, perhaps 1 or 2% of the people of the United States stutter throughout their lives. Perhaps another 3%, however, stutter for a few days, months, or years, either in childhood or later, and outgrow it without treatment. Perhaps everybody, when greatly embarrassed or otherwise pressed, may show disordinated speech; but this is not serious unless it becomes a fixed pattern.

More males than females stutter. Surveys in European and American countries indicate that the ratio increases with age, from about 2 to 1 at 2 years to about 8 to 1 at maturity.¹³⁸

Most stuttering seems to begin either when learning to talk, when starting to school, or with some stress or series of stresses like displace-

¹³⁷ Adapted from J. Am. Med. Assn., 1921, 77:375.

¹³⁸ James F. Bender, *The Personality Structure of Stuttering*, 1939 (Pitman).

ment by a new baby, suffering fright, feeling inferior, conflict, and vocational maladjustment. Travis reported that about 85% of all stutterers began to stutter before they were eight years old.¹³⁹ Some, however, began as adults.

Among 40 returned soldiers who stuttered, according to Blanton, "six began to stutter with service at the front (five of these began with aphonia); seven were stutterers who relapsed with service at the front; one who had stuttered severely had a complete remission at the front until he got into Germany and became homesick; six who had stuttered previously relapsed with service in this country (through such incidents as a fight, a runaway horse, and a close shave with an explosion); one relapsed with the draft, and one relapsed with influenza."¹³⁷

There are relatively more stutterers among the feeble-minded than among persons of normal intelligence. Nevertheless, many brilliant persons stutter; and in the public schools the stutterers as a group seem to equal the nonstutterers in intelligence but to lag a year or two behind them in the grades.¹⁴⁰

Many stutterers have been diagnosed as suffering from psychoneuroses or other disorders; yet Wendell Johnson found a sizable group of stutterers more like normal persons, emotionally and socially, than like neurotics.¹⁴¹ Various investigators have reported that stutterers show differences from nonstutterers in breathing, muscular activity, salivary chemistry, and so on; but these differences would seem to be less the causes than the effects of stuttering or its causes.

Theories of stuttering include organic defects of structure, circulation, endocrines, etc.; weakness of the mechanism of coordination; imperfect dominance by the naturally dominant hemisphere (the left hemisphere in right-handed persons); strain from substituting the non-dominant for the dominant hand; psychoneurotic disposition; conditioning of reactions of embarrassment, fright, etc.; oral-erotic fixations; conflict between speaking and swallowing, crying, or other natural reactions to emotional situations; conflict between proper and improper speech; imitation; amnesia for the right movements, or for the images.

¹³⁹ Cf. Joseph Breuer and Sigmund Freud, *Studies in Hysteria* (Brill, tr.), 1936, 39, 51, 54-55 (Nerv. Ment. Dis. Pub. Co.); PA 6 702, 2 3569; Lee Edward Travis, *Speech Pathology*, 1931, 101 (Appleton).

¹⁴⁰ Travis, *op. cit.*, 97-101.

¹⁴¹ Cited by Landis and Bolles, *Textbook of Abnormal Psychology*, 1946, 323-324 (Macmillan).

auditory, visual, etc., associated with those movements; and general personality difficulties reflected in speech.

Apparently, each of these theories covers some but not all cases; and some cases call for more than one theory. Thus, Wallin found that of all the St. Louis schoolchildren who had been taught to use their right instead of their left hands only 9.4% had defective speech. We wonder how many of those who did stutter were ashamed or worried over their failures when they were making the change. It is hard to see how imperfect dominance can apply to the child who stutters in only one of the two languages he speaks. Johnson's own stuttering began when he seemed normal physically and emotionally and persisted despite psychoanalysis and retraining. Most of the theories, however, have proponents who have effected some cures.¹⁴²

Disorders, psychogenic or organic, may derive at least partly from stress. Many extreme examples of abnormal redintegration, resort to illness, projection, neurasthenic effects, special dissociation, and other headings that we have touched upon, also psychoneuroses and major mental derangements, could be considered here. Especially emphasized of late under a new name are "psychosomatic disorders"—those affective, sensory, and muscular aberrations, alimentative neuroses, peptic ulcers, heart neuroses, neurocirculatory asthenias and hypertension, asthmas, and so on, that have been traced largely to stress. Even physical illness can result from stress that wears down the organism's resistance. It is noteworthy that psychogenic disorders are seldom found in those soldiers who are severely wounded or ill from physical causes.¹⁴³

¹⁴² Cf. Dorcus and Shaffer, *Textbook of Abnormal Psychology*, 1939, 77-91 (Williams and Wilkins); Frederick W. Brown, *Am. J. Orthopsychiat.*, 1932, 2:1-24, 95-98, 363-371, 417-420, *Ment. Hyg.*, 1933, 17:266-277; Janet, *The Major Symptoms of Hysteria*, 217-219, 224-226; Wendell Johnson, *Because I Stutter, People in Quandaries*, 439-466; Herbert Austin Aikins, *J. Abn. Psychol.*, 1923, 18:137-152 (in Gardner Murphy, ed., *Outline of Abnormal Psychology*, 1929, 175-192, Modern Library); PA 15 263, 17 4142, 18 3174, 20 131, 25 6303; etc.

¹⁴³ Cf. 490-493, 521, 540f., 547ff., above; J. Déjerine and E. Gauckler, *The Psychoneuroses and Their Treatment by Psychotherapy* (Jelliffe, tr.), 1913 (Lippincott); T. A. Ross, *The Common Neuroses*, 1937, 101 (Longmans; copyright E. Arnold); PA 4 3436, 595; PA 8 1701, 5503; George K. Pratt, quoted in Editors of *Fortune*, *The Nervous Breakdown*, 1935, 37 (Doubleday); Maslow and Mittelmann, op. cit., 368-374; Taylor, *J. Abn. Psychol.*, 1921, 16:344-355, 1923, 18:107-124 (*Readings*, 697-724); Harrington, op. cit., 352-365; White, op. cit., passim; A. J. Sullivan and T. E. McKell, *Personality in Peptic Ulcer*, 1950 (C. C. Thomas); PA 17 543; Sherman, op. cit., 234-235; Adelaide McFadyen Johnson, in Alexander, French, and others, *Psychoanalytic Therapy*, 299-303; Norman Cameron, *The Psychology of Behavior Disorders: A Biosocial Interpretation*, 1948, 187-223, 278-387 (Houghton Mifflin); Emanuel Miller, *The Neuroses in War*, 1941, 15 (Macmillan).

According to Dunbar, a physician had good reason to think that a woman patient's "symptoms of appendicitis" were psychogenic, so he undertook to cure her by psychoanalysis. He could not forget, however, that a colleague's patient had died of a ruptured appendix under similar circumstances; so he examined the woman—and rushed her to a hospital just in time to save her life. This was during the Christmas holidays.

A year later, when it was also the anniversary of his father's death, he was scheduled to attend a family Christmas party. Beforehand, his mother recalled that one time his father had almost died of appendicitis. The doctor himself realized that he did not want to go to the party.

He set out, nevertheless, with another physician who had been invited. Suddenly he was stricken with abdominal pains that seemed exactly like acute appendicitis. The friend recommended an immediate operation. The subject, however, hesitated and thought of other possible causes. He remembered that he had worried over his patient's narrow escape from death from appendicitis; his mother had reminded him of his father's narrow escape from the same disease; and he himself had wanted an excuse to avoid the party.

"As soon as he had reasoned this out thoroughly the pains left him. The two friends proceeded to the party as scheduled, and the doctor felt fine the whole time. When he returned to the city, he was examined by another physician who confirmed his self-diagnosis that there was nothing wrong with his appendix. This man, thanks to his own experience in psychosomatic methods, had been able to remove his need of an illness just as the symptoms began to appear."¹⁴⁴

"Sublimation"

Some writers have supposed that thwarted urges can find a happy "way out" through sublimation. Whence came this idea, and how sound is it?

Rise of the idea. Various primitives held that sexual abstinence is good, at least for certain persons or periods. They believed so for reasons like these: Sexual abstinence avoids the envy of the chiefs or of the gods. It conserves energy for fighting, or, magically, for the chiefs, the gods, the tribe, or the herds and crops. It avoids the weakness that comes, by contagious magic, from woman. It punishes the flesh, and so purifies the spirit. It prevents the burdens of pregnancy and

¹⁴⁴ H. Flanders Dunbar, *Mind and Body: Psychosomatic Medicine*, 1947, 41-42 (Random House).

venereal disease. It also saves men from family attachments and for military or religious consecration.

Several of these notions have persisted into modern times. In particular, many ancient and later thinkers have assumed that "sexual energy" can be diverted or transmuted into muscular, affective, intellectual, esthetic, social, or religious activities.

Such diversion or transmutation Freud called sublimation. In his view, it may occur when "the primal impulse" is either frustrated from without or checked from within. The resulting sublimation, he supposed, is essentially unconscious; it is an alternative to perversion and neurosis; and it is a great force for civilization.

Other writers supported the idea of sublimation, and some of them extended it to nonsexual drives.

Freud assumed that clothes enhance sexual curiosity and that the turning of such curiosity from the genitals to the whole body contributes to art.

Alexander cited "the dentist who has succeeded in associating his sadistic impulse with the curative purpose and thus is enabled to give way to it harmlessly and without guilt."

The stock example of sublimation is the woman disappointed in love who goes into a nunnery and devotes herself to religion and humanity.

S. A. Bornstein (1933) reported that one woman sublimated her desire for love from her parents into effective teaching of backward children.

G. Stanley Hall thought that anger can be sublimated through rivalry or constructive work.

Levey said that "sublimation is valued by all men as the keystone of our culture"; and Symonds considered it "the one mechanism which comes closest to the affairs of everyday life."¹⁴⁵

Difficulties in the idea. Freud himself, however, thought that sublimation applies mainly to such "infantile components of sexuality" as touching and looking. He also believed that sexual abstinence does not promote sublimation; that many people have very little capacity for sublimation; and that to try to sublimate completely is harmful to mental health, for many natures at least. Thus, he said, "an abstinent artist is scarcely conceivable"; and "on the whole I have not gained the

¹⁴⁵ Cf. Taylor, *Genet. Psychol. Monog.*, 1933, 13:No. 1, 8-12, 52; Harry B. Levey, *Psychiatry*, 1939, 2:239-270, 1940, 3:241-293; Hall, *Am. J. Psychol.*, 1915, 26:439-443 (in the Robinsons' *Readings in General Psychology*); Symonds, *op. cit.*, 405.

impression that sexual abstinence helps to shape energetic, self-reliant men of action, nor original thinkers, bold pioneers and reformers."

Studies of healthy, well-nourished men have failed to demonstrate complete sublimation. Furthermore, as Horney pointed out, neither historical nor anthropological findings show that civilization has been advanced by thwarted drives. Our civilization has been marked by much official thwarting of sexual and other drives. At the same time, it has been marked by much unofficial release of those drives, also by considerable perversion and neurosis. Consequently, there has been further thwarting of basic drives, also of other interests, including idealism. Perhaps our civilization has advanced not because but in spite of these various thwartings.¹⁴⁶

A psychological analysis. The apparent confusions and contradictions in Freud's view have moved various students to criticize it, to sift out what is good, and to state the good in psychological language.

"Sublimation" seems to be a name that covers at least two mistaken notions and several real but limited psychological processes.

Apparently, sexual motivation is not the source of "higher" motivations; rather, the sex drive is one of a number of motives that are important in their own right.

Neither is there transmutation of any specific instinctive energy into nonspecific energies. Lust is lust, whether it be evoked by a person or by a substitute stimulus. Anger is anger similarly, whether aroused against a person or against injustice.

There is evidence for, within limits, shift of metabolism; alternative reaction; and redintegrative release of patterns and therewith of their drives. Also familiar are nonarousal of patterns through lack of stimulation; and improved integration through new learning, suggestion, understanding, and various satisfactions.

When the woman disappointed in love enters the nunnery, most likely her new activities divert some of her metabolism, her general energy, from romantic to other interests. The new activities also inhibit, centrally, some of the thwarted ones. Her pent-up tender emotion, altruism, and desire for companionship are expressed toward widows and orphans, religious associates, and objects of worship. Her esthetic appreciation, wonder, submission, admiration, positive self-feeling, and pride find outlet likewise in religious objects, rituals, duties, and status.

¹⁴⁶ Cf. Levey, *loc. cit.*, *passim*; Taylor, *likewise*; PA 11 1408.

Even her lust may be released upon an imagined heavenly lover or upon some object that reintegrates this component. Her intention to be a devoted wife and to establish an abode may link with her vocation and her place in the nunnery. The more the components of her thwarted romance are so released, it would seem, the more her total tension is reduced, and the more she can inhibit the components that remain. Thus, she may inhibit the lust component altogether, as seems possible for women.

Meanwhile, she is removed from the old stimuli of her malady—the man she loved, his gifts and messages, and the activities and places associated with him. In their stead she gains a healthful regimen, a significant role, inspiration from fine things, moral support, and a new perspective; all of which make for integration.¹⁴⁷

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¹⁴⁷ Taylor, *loc. cit.*, 12; Levey, *loc. cit.*; PA 9 3718.

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19

Mental Disorders

Mental patients have always been great teachers, though few have been willing to stoop to learn from them. Last summer some of my artist friends put their heads on the ground to see a landscape upside down; they saw things that the hopelessly upright person could not see. The same thing is sometimes true in the world of the mind.

Earl D. Bond

Who then is sane? He who is not a fool.

Horace

Every man has a sane spot somewhere.

R. L. Stevenson and Lloyd Osbourne

Classification. "It was a sad day," said Meyer, "that brought psychiatry to a craving for premature classification." Such classification has disregarded many facts and has grouped many under "antique and venerable, but alas! almost meaningless names."

Nevertheless, psychiatrists and others have felt that cases must be classified somehow for surveys and reports. Moreover, many of the labels do point to significant characteristics; and everyone hopes that a more carefully tested and improved classification will help further to understand mentally sick persons.

Attempts at classification began with the earliest studies of mental disorders, and culminated in Kraepelin's system of about 1900. Kraepelin's system, with modifications, is still widely used. Many psychiatrists

and others have recognized it as more convenient than realistic. Few if any patients fit the categories exactly. Many diagnosticians interpret the categories and symptoms so individually that different diagnosticians put the same patient into different categories. Some diagnosticians disregard some of the categories and set up new ones of their own. The American Psychiatric Association, however, approves the Kraepelinian classification as modified from time to time by a committee of that Association.¹

Content of the chapter. Since this is not a textbook of psychiatry, and we have considered many abnormalities in all the preceding chapters, in this one we shall sketch the apparent incidence, causes, and characteristics of principal mental disorders, following essentially the classification used by the American Psychiatric Association. We shall, however, change the order of that classification and proceed somewhat according to genesis, from the clearly organic psychoses through the less clear etiological types to the psychogenic disorders, the psychoneuroses; except that we shall take up last that most doubtful category, "psychopathic personality." We shall also glance at some psychological aids to diagnosis and prognosis.

Illustrative cases, also other mental disorders—alcoholic psychoses, Huntington's chorea, Jacksonian epilepsy, involution melancholia, etc.—and all types of feeble-mindedness, the interested student can find in available books.²

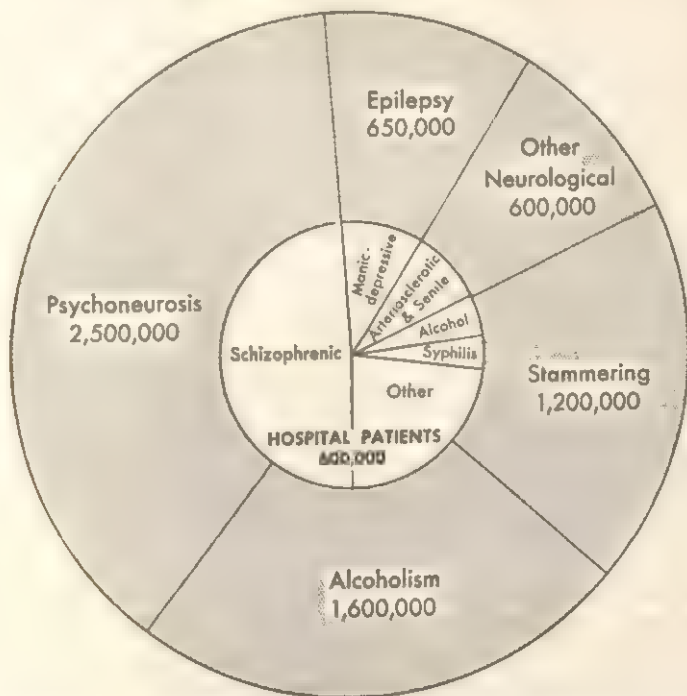
Incidence

General incidence. As remarked in the first chapter, psychoneuroses are extremely common, and perhaps one out of every ten persons has a psychosis or other major mental disorder some time during his life. Cobb estimated that, among the 130 million people of the United

¹ Adolph Meyer, cited in Alfred Lief, *The Commonsense Psychiatry of Dr. Adolf Meyer*, 1948, 101 (McGraw-Hill); James V. May, *Mental Diseases. A Public Health Problem*, 1922, 234ff. (Badger); *Statistical Manual for the Use of Hospitals for Mental Diseases*, various editions (National Comm. for Mental Hygiene). Cf. Benjamin Mehlman, *J. Abn. Psychol.*, 1952, 47:577-578.

² Cf. Landis and Bolles, *Textbook of Abnormal Psychology*, 1950 (Macmillan); James D. Page, *Abnormal Psychology: A Clinical Approach to Psychological Deviants*, 1947 (McGraw-Hill); Robert W. White, *The Abnormal Personality*, 1948 (Ronald); Taylor, *Readings*, 39-90; Lawson G. Lowrey, *Psychiatry for Social Workers*, 1946 (Columbia Univ. Press); Winfred Overholser and Winifred V. Richmond, *Handbook of Psychiatry*, 1947 (Lippincott); C. S. Bluemel, *The Troubled Mind*, 1938 (Williams and Wilkins); Arthur Burton and Robert E. Harris, *Case Histories in Clinical and Abnormal Psychology*, 1947 (Harper); Robert P. Knight, *Bull. Menninger Clinic*, 1953, 17:1-12.

States in 1940, there were mental disabilities in about the proportions shown below.



For some of the figures given, there is good evidence; for others, the estimate is little better than a good guess. For the *central psychiatric group* (inner circle), the 600,000 patients, excluding feeble-minded in mental hospitals, fairly exact data are obtainable. The division into schizophrenia, 49%; manic-depressive, 10%; arteriosclerotic and senile, 9%; alcoholic, 5%; and syphilitic, 4%, is adapted from Dayton's figures for Massachusetts (1). As for the outer circle—the *borderland of psychiatry*—there are a number of good surveys (2) that indicate the amount of epilepsy in the community. The incidence of severe stammering is well known from many school and college surveys to be a little less than 1% (of the entire population). The estimate of the number of "alcoholics" is taken from Haggard and Jellinek (3), but it depends so much on definition that great variation is to be expected in the figures of different investigators. The incidence of psychoneurosis is extremely difficult to discover; two surveys, (4) and (5), however, come so close to the same figure that it is used as an approximation when "psychoneurosis" means a personality disorder severe enough

to cause the patient to seek medical help or be advised to seek help. Milder degrees of maladjustment are almost universal. The least dependable figure on the chart is the 600,000 "other neurological" patients; these are the patients living on with damaged central nervous systems from various causes. The estimate is a guess made from the number of neurological and neurosurgical admissions to general hospitals. "Psychopathic personality" is not given a separate division; some of these fall under psychoneurosis and some under "neurological" because of cerebral trauma.³

Of these disabilities and two that are not shown, paranoia and psychopathic personality, we shall consider only the senile, syphilitic, epileptic, schizophrenic, manic-depressive, paranoiac, psychoneurotic, and psychopathic-personality categories.

The percentage of first admissions mentioned for each category is based on the Federal Security Agency's reports for public and private mental hospitals in the United States in 1947.⁴ As those reports for 1947 do not cover residents in institutions by diagnoses, any percentage of residents will be a composite of earlier reports and estimates referred to in the notes.

Question of increase. There is no proof that mental disorders are increasing; though apparently they must increase if society, through unequal taxation, educational demands, social security, and availability of contraception, continues to encourage the fit to have few children and the unfit to have many. (This does not mean that all or nearly all of the economically more successful or established people are fit, or that all or nearly all of the rest are unfit.)

Incidence in special groups. Surveys of mental disorders in the United States and other countries by Landis and Page, and in Massachusetts by Dayton, indicate that mental disorders are more common among immigrants than among the settled population of any given area, among men than among women, the unmarried than the married,

³ Reproduced, by permission, from Stanley Cobb, *Borderlands of Psychiatry*, 1943, xii, with italics added (Harvard Univ. Press). The references are to (1) Neil A. Dayton, *Mental Disorders: Statistical Summary of Admissions, Discharges and Deaths*, 1939 (Commonwealth of Massachusetts); (2) William G. Lennox, *Science and Seizures*, 1941 (Hoeber); (3) W. Haggard and E. M. Jellinek, *Alcohol Explored*, 1942 (Doubleday); (4) E. Sydenstricker, Public Health Reports, 1926, 41:2069-2088; and (5) Paul Lemkau, Christopher Tietze, and Marcia Cooper, *Am. J. Psychiat.*, 1941, 97:805-811.

⁴ Federal Security Agency, Public Health Service, *Patients in Mental Institutions: 1947, n.d.*, 41-46 (Government Printing Office).

the older groups than the younger, and the economically dependent than those who are more secure.⁵

These differences do not justify simple conclusions about the different groups and the causes of their disorders. For example, quite likely, many of the unmarried group are abnormal not because they are unmarried but are unmarried because they are abnormal. Again, to quote Landis and Page, "As compared with the stable population, the immigrant groups are generally older, have a greater proportion of men, are generally single or without families, are usually without financial resources, and are much more apt to live in large cities. Equating all these differences between the immigrant and the indigenous groups would probably eliminate all, or practically all, of the excess rate in immigrant groups."⁶

Causes

Like other mental processes, disorders seem to derive from all of the causes that affect an individual: his heredity and environment, including in the latter physical, economic, social, and psychological influences. Thus, if two individuals have exactly the same environment from birth, one with sound heredity might be well, and one with unsound heredity, disordered; or if two have the same heredity, one might be well, and the other, disordered by some environmental cause or causes.

In many a case, the causes cannot be made out clearly. For example, Charles Darwin, with his fatigues and ills, is often taken to represent "constitutional inadequacy";⁷ but who can tell how much Darwin's poor health was inherited or acquired, organic or psychological?

In other cases, as we shall see, the causes are relatively clear.

Heredity, as a cause, now seems definite, though perhaps complex, for respective predispositions to dementia praecox, or, as it is called, schizophrenia; manic-depressive psychosis; and epilepsy of the kind that does not come from acquired neural damage. Everywhere, however, heredity enters, as it makes for differences in susceptibility to all the physical, economic, social, and psychological causes.

Physical causes that have been studied for one or more disorders include lack or imbalance of minerals, vitamins, other nutrients, endo-

⁵ Cf. Carney Landis and James D. Page, *Modern Society and Mental Disease*, 1938 (Farrar & Rinehart); Neil A. Dayton, *New Facts on Mental Disorders*, 1940 (C. C. Thomas).

⁶ Op. cit., 93.

⁷ Cf. Walter C. Alvarez, *Nervousness, Indigestion, and Pain*, 1943, 230-243 (Hoeber).

crines, glycogen, constitution of the blood, oxygen, nutrition, circulation, lipid and other metabolism, and bioelectric cerebral activity; injury, illness, and deterioration of the nervous system; toxins, exogenic and endogenic; and fatigue and susceptibility to fatigue (which evidently depend upon various factors). It seems clear that any of these and other factors, if marked, can produce mental disorder in the predisposed, and, if extreme, in the natively sound.⁸

Economic causes—poverty, insecurity, responsibility for property: Faris and Dunham discovered that schizophrenia in Chicago is relatively more common in the poorer than in the favored districts; but perhaps this means not that the poverty caused the schizophrenia, but that schizophrenics tend to be poor. Landis and Page found no marked relation between general economic conditions, such as the depression of around 1930, and the general incidence of mental disorders. Dayton showed that military or economic dislocation increases the number of admissions to state hospitals for the insane; but such dislocation must lead many people to put their mentally sick relatives in public institutions rather than keep them at home. Perhaps military or economic challenges make many persons become more integrated, and others, more disintegrated.⁹

Social causes include rejection by parents and others, cruelty, spoiling, cultural burdens and deprivations, isolation, persecution, and the like; though these could also be considered psychological.

Some authors seem to have thought that different societies must produce different proportions if not kinds of mental disorders; and that many a psychotic person would be normal if his society were reformed or if he were transferred to a society congenial to his type.¹⁰ We should expect a too-difficult society to cause poor integration, and a too-easy society to fail to develop integration. Moreover, it seems likely that no two societies are equally congenial to the integration of any given person; that every society can be made better for the people that live

⁸ Cf. Landis and Page, op. cit., 80-87, 151-153; Pollock, Malzberg, and Fuller, 1934-1935; Rosanoff, Handy, and Plesset, 1935; Androp, 1935; Cobb, *Foundations of Neuropsychiatry*, 1941, passim (Williams and Wilkins); P. Blonsky, *Zeitschr. ges. Neurol. u. Psychiat.*, 1930, 1 u. 2:51-64; PA 11 4530, 5133, 14 911, 10 1017, 12 4752; Larue, Painchaud, and Nadeau, 1950; Kraepelin, passim; E. D. Wittkower and R. A. Cleghorn, *Recent Trends in Psychosomatic Medicine*, 1953 (Lippincott).

⁹ Cf. R. E. L. Faris and H. W. Dunham, *Mental Disorders in Urban Areas*, 1939 (Univ. of Chicago Press); Landis and Page, op. cit., 146-149.

¹⁰ Cf. Ruth Benedict, *J. Gen. Psychol.*, 1934, 10:59-82.

in it; and that to transfer some individuals to other societies would benefit those individuals.

Still, it does not follow that societies differ much in their mental disorders. No society that is too difficult or too easy for human nature can long survive; and normally endowed persons adapt themselves to and even modify their societies.

The superficial symptoms of disorders do vary from one society to another. According to Landis and Page, this "is perhaps best illustrated in Russia. In Czarist Russia religion was a powerful factor in the lives of the people, and when an alcoholic patient suffered from persecutory hallucinations he usually saw devils pursuing him. Today the devils have been replaced by Stakhanovites or good workers. The voice that torments the dementia praecox patient is no longer the voice of God accusing him of sin, but that of other workers who accuse the patient of not doing his share in the Five Year Plan. Patients with delusions of grandeur no longer imagine themselves as kings or grand dukes, but as great engineers and inventors." The disorders themselves, however, are not known to vary essentially. "The way of life, the cultural background, and the physical environment of the American Indian, the African Negro, the European, and the Chinese are quite different, yet they are all susceptible to the same mental diseases, and in their psychoses they exhibit the same basic mental symptoms. . . . In all probability, the actual incidence of mental disease would be no different in any one of these groups if all statistics were based on a standardized population grouping."¹¹

Neither does it follow that all or many abnormal persons would be normal if transferred to the societies thought most congenial for them. If an American with delusions of demon possession were transferred to a society that believes in such possession, would he be well adjusted there? Certainly not; his delusions embody a personal disorder, not the adaptability that is needed for living, without special protection, in any society.

Psychological causes include stimulations, obstacles, lacks, deprivations, personal interests and limitations, frustrations, conflicts, boredoms, inferiority feelings, and threats, like those suggested in the preceding chapter; also thought, and various special learnings, mis-

¹¹ Adapted from Landis and Page, *op. cit.*, 115, 153. Cf. also *Sci. Monthly*, 1939, 43:486.

learnings, and lacks of learning. On the whole these causes seem to enter more largely into the minor mental disorders, that is, the psychoneuroses, than into the psychoses and other serious conditions. The psychological causes seem to precipitate, however, major disorders or acute attacks in many persons who are strongly predisposed to these disorders. Moreover, the psychological causes play a part in every disorder as in every personality. As White put it, "The disease happens to the man, and the man puts his stamp on the standard symptoms that result from the disease."¹²

General Categories

Apart from some of the epilepsies to be mentioned in a later section, also psychopathic personality, which is perhaps a mixed category, most of the material before us seems to fall under one or the other of two headings, namely, psychoneuroses (often called neuroses) and psychoses. We shall define them as follows.

Psychoneuroses. *A psychoneurosis is a psychogenic disorder with personality little affected and insight good, generally speaking.* This does not mean that the disorder is wholly psychogenic, since cortical, metabolic, and other defects no doubt work for instability and psychoneuroses; but without determinative experiences, emotional impressions, stresses, a psychoneurosis does not occur. The personality is little affected and insight is good in that, generally speaking, the patient remains essentially himself; he himself is not disordered but merely has a disorder; and he knows that he has it, or, at any rate, he knows the world and his place in the world as usual. Strictly speaking, his personality and insight are affected just so far as he is not normal; but they are not affected so markedly as in a psychosis. Thus a psychoneurotic may need treatment but not, usually, hospitalization.

The psychoneuroses fall traditionally into the subgroups neurasthenia (often including hypochondria or some types of hypochondria), psychasthenia, and hysteria, and more recently into such further subgroups as anxiety neurosis and reactive depression.

Psychoses. *A psychosis is a disorder with personality affected and insight poor, generally speaking.* Some psychoses, among them senile, syphilitic, and epileptic psychoses, are organic. Others, schizophrenia,

¹² *Op. cit.*, 519.

manic-depressive psychosis, and paranoia, are called functional, but properly only in the sense that no definite basis in tissue damage has been demonstrated for them. Increasingly, psychiatrists and others believe that there is some organic basis for every psychosis at least (Terhune, 1949).

The psychotic's personality is affected, and his insight is poor, in that, generally speaking, he is changed; he himself is disordered; and he fails to know that he is disordered, also to know the world and his place in it as he would if he were not psychotic. A good many psychotics, however, show partial or fluctuating insight in the embarrassment with which they confess their delusions; and some psychotics have considerable insight and even seek treatment.¹³

In the hospital, many psychotics can do some work under supervision, and many are more or less suggestible (G. W. Williams, 1932, Ingvarsson and Lindberg, 1935). Even thus segregated, however, they remain largely unsocial.

For the most part, psychotics are not able to manage their affairs and get along with people. Thus they require hospitalization.

Characteristics in common. Both psychoneurotics and psychotics are maladjusted. Perhaps half of each group show neurocirculatory inefficiency (McFarland and Huddleson, 1936). Many members of both groups have abnormally active parotid (salivary) glands (M. A. M. Lee, 1931; Strongin and Hinsie, cited in Lourie, Barrera, and Strongin, 1942). All the members of both groups are abnormal in so far as they fail to learn to be normal.

To a number of students, neurasthenia looks somewhat like a mild schizophrenia, and hysteria, like a mild manic-depressive psychosis. Some have supposed that psychoses are only enhanced psychoneuroses.

Differences. Apparently, however, the population as a whole does not form a "normal curve of distribution" between the very normal and the very psychotic. Psychoneuroses are continuous with what we called, in the first chapter, everyday mental abnormalities, and some psychoneuroses seem to shade into psychoses; but typically, a psychoneurosis shows rather serious symptoms, and a psychosis, very serious and somewhat different symptoms. The situation is like that for colds,

¹³ For an example of fluctuating insight, cf. Alonzo Graves (pseudonym for Ben Karpman), *The Eclipse of a Mind*, 1942, 182-183 (Ben Karpman, Washington, D. C.)

catarrh, and so forth, and pulmonary tuberculosis. Most of the people who have respiratory troubles are not half tubercular.

Psychoneurosis and psychosis are not mutually exclusive, in that some psychotics have psychoneuroses; yet the difference between the psychosis and the psychoneurosis in a given case is often marked.

It is not even clear that psychoneurosis predisposes to psychosis. A follow-up study by T. A. Ross (1936) on 1186 psychoneurotics found them no more likely than other people to become psychotic.

Senile Disorders

The mental disorders of age seem closely related to various lesser psychoses with cerebral arteriosclerosis and to presenile psychosis; but we shall consider only the senile disorders.

Incidence. With the increasing number of old people, and the decreasing number of public and private homes willing to care for them, by 1947 senile patients made up about 10% of the first admissions and about 25 or 30% of the population of the mental hospitals, state and private taken together. Of these admissions, about 54% were women. The median age for the men and for the women was over 70. Age at onset differs greatly, however; some people become mentally senile in their 60's, many in their 70's and 80's, and some not until their 90's, if then.

Causes. Heredity is an important factor; some families age earlier than others. Physical factors—too much alcohol, too little nourishment, especially protein, minerals, and vitamins—may play a part. Economic, social and psychological factors, among them retirement from interesting work, bereavement, dependence, lack of psychological preparation for the last part of life, and, some think, intellectual inactivity may enter also. The immediate cause, however, is deterioration with atrophy of the cerebrum; an atrophy that can be shown by a pneumoencephalogram.

Symptoms. Senile disorders are marked essentially by slowed or reduced ability to learn, perceive, and respond. Thus senile persons fall below their former standard in recent memory, attention, abstraction, imagination, reasoning, general intelligence, and voluntary activity. Probably their awareness of their failings, and the failings themselves, make such persons variously conservative, self-centered, obstinate, stingy, crochety, irritable, anxious, suspicious, restless, childishly emo-

tional, apathetic, depressed, in a few cases suicidal, often subject to illusions, and, in the more severe cases, hallucinated, deluded, confused, delirious, and perhaps assaultive. Senile delusions are often of property being taken away, of poisoning, and of bodily harm. Many a senile person develops an overintense or preoccupying sexuality, usually of some immature kind. Some senile persons develop psychoneuroses. Many cover up their memory gaps with fabrications. Many who are not too severely affected have surprisingly lucid intervals or flashes. All these symptoms vary, in quality and quantity, from case to case, according to structural damage, temperament, habit, and other circumstances.

Except in extreme cases, however, or where some other psychosis intrudes, the typical senile patient remains essentially himself. He may be generally disoriented, mistaking strangers for old friends, not recognizing his family, and thinking that his parents are young, and that his locale and the year and season are quite different from what they are; yet he remains well mannered, largely aware of his failings, and thinking realistically even about the wrong things. Thus he seems to have become more limited than distorted. Herein he is very different from many other psychotics, especially the schizophrenics.

Many senile patients seem very content.¹⁴

Prevention. Before medical science gave most people in progressive countries a long life, countless senile disorders were prevented by death from some prior disease or injury. We have the opportunity to postpone senility, so far as possible, through encouraging the sounder rather than the less-sound stocks to multiply; and through good physical, economic, social, and psychological management throughout life. Now that the aged are more deprived of responsibility, company, and affection than they were in an agricultural civilization, we may need some new community organization, or at least clubs, both to benefit the aging persons and to conserve their mellowness, perspective, and other contributions to our life.¹⁵

¹⁴ Cf. Harold E. Jones and Oscar J. Kaplan, also Cameron, and others in Oscar J. Kaplan (ed.), *Mental Disorders in Later Life*, 1945 (Stanford Univ. Press); Landis and Bolles, op. cit., 186-198; Bluemel, op. cit., 383-391; George H. Savage, *Lancet*, 1919, 1:1013-1016, or *J. Nerv. Ment. Dis.*, 1920, 51:217-230; Louis J. Karnosh, *A Psychiatrist's Anthology*, 1935 (Occupational Therapy Press).

¹⁵ Cf. Dunham, in Kaplan, op. cit., 122-129; Cameron, *ibid.*, 180; Samuel Henry Kraines, *The Therapy of the Neuroses and Psychoses*, 1943, 382-392 (Lea); Saxton, also others, in *Biological Symposia*, 1945, 11:passim; George Lawton (ed.), *New Goals for Old Age*, 1943 (Columbia Univ. Press).

Prognosis. The outlook for the senile patient's recovery, of course, is not good. Commonly, the decline continues, if life does, to practically complete dementia. Some definite gains, however, have resulted from improved rest, physical and occupational therapy, nourishment, treatment with vitamins, treatment with iodides, socialization, and psychotherapy.¹⁶

General Paresis

When the *Spirochaeta pallida* invades the nervous system, it produces a variety of disorders. Among these are some with intracranial gumma, tabes dorsalis, or other inferior neural involvements; many with meningovascular syphilis; and many with meningoencephalitic syphilis, that is, infection especially of the pia-arachnoid and the cortex of the cerebrum. Of these disorders, we shall consider only the meningoencephalitic type.

This type has been called general paresis, general paralysis of the insane, dementia paralytica, lues of the central nervous system, luetic psychosis, or sometimes, confusingly, "specific"; the multitude of names reflecting humanity's initial ignorance and later embarrassment about the disease. The disease is general in that, if not treated in time, it affects the whole personality; but in the early stages it is less a paralysis than a discoordination. The terms "lues" and "luetic" derive from the Latin *lues*, plague, from *luere*, to loose.

Incidence. Throughout recent years this disorder has been decreasing. It now marks about 4% of the first admissions and 4% of the residents of our mental hospitals. Its victims are, in relation to the corresponding general populations, about four times more Negroes than whites, three times, urban than rural, and three-and-a-half times, male than female. It comes on at any age from infancy to 70, but usually in the late 30's or early 40's.¹⁷

Causes. The disorder is a venereal disease, but it can be caught through drinking cups, toilet seats, and so on if the germs are still warm and moist and can get through some crack or other weak spot in the epithelium; then they produce the initial syphilitic sore. Of the persons

¹⁶ Cf. Kraines, loc. cit.; Nathan W. Shock, in Kaplan, op. cit., 50-51; Terhune, 1949; A. Silver, *Geriatrics*, 1950, 5:147-150; Lawton, op. cit.

¹⁷ Landis and Bolles, op. cit., 216; Lowrey, op. cit., 54-59, 98-112.

who develop general paresis, about 25% develop it within 10 years, 50%, between 10 and 20 years, and 25%, after 20 years, from the time of infection (Noyes, 1934). Consequently, as autopsies show, the dura and the pia-arachnoid are thickened and, except where the cortex is atrophied, adherent; the cerebrum is considerably shrunken, beginning at the front; there are characteristic histological changes; and, by special methods, spirochetes can be found in the brain.

Only a small fraction, perhaps two percent, of all the persons who become infected with syphilis develop the meningoencephalitic type, even without treatment. Some of this fraction develop the disorder after a head injury; but perhaps all who develop this type of breakdown either are invaded by a special strain of spirochete or are somehow predisposed.^{17, 18}

Symptoms. The person so infected is likely to show various biochemical and neurological signs. The latter, which interest us, include a relaxed, untroubled face; a pupil that fails to react to light (the Argyll-Robertson pupil); and a slurring speech that is easily mixed up on phrases like "Methodist Episcopal," or "Around the rugged rock the ragged robber ran." Often the infected one has become somewhat easily fatigued, irritable, forgetful, accident-prone, careless in dress and manners, unable to calculate well, wasteful, extravagant, intemperate, licentious, unprincipled, unconventional, and, in general, poor in judgment.

Unless he receives proper medical treatment, he may develop euphoria—"feeling fine," thinking "the world is wonderful"—together with delusions of wealth, importance, and power. (Perhaps the delusions are less the cause than the effect of the euphoria.) Or, he may become depressed, agitated, or manic, and develop what looks like some schizophrenic or other psychosis. Anyway, as the months go on, he becomes more and more incompetent; he develops convulsions; his mental life deteriorates toward or to complete dementia; and he dies, usually within two or three years after his admission to the hospital.

With modern medical treatments, however, the picture is changed. Many patients improve. Many do not become very psychotic; and they live on for years with the disease arrested if not cured.^{18, 19}

¹⁸ Cobb, *Foundations of Neuropsychiatry*, 160-162; Michael Osnato, *J. Am. Med. Assn.*, 1918, 70:434-439.

¹⁹ Cf. Kraines, *op. cit.*, 362-367; Bluemel, *op. cit.*, 392-401; Karnosh, *op. cit.*

Prevention means, of course, prevention of infection, and prompt treatment if infection occurs. Both measures call for public education, such as Parran and others have begun; more satisfactory marriages, through education for adult living and marriage, community organization for general, ethical, and vocational education, vocational guidance, recreation, better housing, birth control, and marriage counseling; and required physical examinations and treatment.

Prognosis. In general, the earlier the treatment, the more successful it is. The methods of treatment include fever therapies and various medicines and are being improved continually. Psychotherapy, too, can help the adjustment in many cases (Kraines).

Idiopathic Epilepsy

"Epilepsy," from roots meaning "on or upon" and "seizure," is a name often applied to various disorders marked by convulsive attacks or their equivalents.

Formerly ascribed to devils, and later thought to be contagious, these disorders now seem to fall into three groups and their combinations: (1) Clearly organic cases, from mechanical pressures, tumors, infections, toxins, and so forth, in the brain. These cases are often called "acquired" or "symptomatic," as they reflect other than hereditary causes. The American Psychiatric Association recommends that such cases be classified not as epilepsy but in the categories of their causes. (2) Inherited cases, without known organic base; though modern biochemistry and electroencephalography suggest that there must be some such base. This kind is called "genetic," "essential," or "idiopathic," the last from roots that mean "proper or one's own" and "suffering"; in other words, not caused by any other disease. It is the most common kind. (3) Psychogenic cases. These, though often hard to distinguish from other cases, belong properly under psychoneuroses.

We shall in this study consider only the essential, the idiopathic, epilepsy.

Incidence. Idiopathic epilepsy appears in perhaps two or three out of every thousand persons, male and female, in the United States. Only a small fraction of these cases are helpless or psychotic enough to be in mental hospitals; but this fraction amounted to about 4% of the patients in such hospitals in 1944.

Idiopathic epilepsy appears usually in early childhood or in adolescence, but sometimes not until later.²⁰

Causes. Although many epileptic parents have apparently normal children, and many apparently normal parents have epileptic children, electroencephalography reveals characteristic "brain waves" of epilepsy predominantly in epileptics and their relatives. Moreover, studies of non-twin siblings, fraternal twins, and identical twins point clearly to a genetic base for this kind of epilepsy.

At the same time, it seems that there is inheritance of different degrees of epilepsy, or of different degrees of tendency to epilepsy; and that, for any degree, an attack may be brought on by any sufficient disturbance of body or mind. There are, however, many cases in which attacks occur more or less regularly unless checked by special rest, medication, dehydration, or other care.²⁰

Symptoms. Attacks of epilepsy other than localized types involve some lapse or confusion of consciousness and, in the more severe cases, falling and convulsive movements. Brief attacks, lasting perhaps only a few seconds, without falling or convulsions, are called "petit mal." Fits, severe attacks with general convulsions, frothing, and perhaps wetting, are called "grand mal." Between these extremes are all sorts of gradations. Whatever the gradation, the subject really loses control in proportion to the attack. Thus, the victim of petit mal fails to see an approaching vehicle. The victim of grand mal falls on the sidewalk, cuts his head and breaks his teeth. Even in an attack in bed he is likely to bite his tongue.

Often the attacks are preceded by hallucinations, organic, olfactory, visual, auditory, or other; by some special feeling or emotion; or by a confused or "clouded" state. Any such precursor is called an "aura." Often, too, the attacks are followed by similar phenomena. The most severe attacks are followed by stupor.

The first attacks may occur every few years or months, and may increase up to several a day. They may also occur at irregular or rather regular intervals.

²⁰ Cf. Landis and Bolles, op. cit., 248ff.; various authors and references in Paul H. Hoch and Robert P. Knight (eds.), *Epilepsy: Psychiatric Aspects of Convulsive Disorders*, 1947 (Grune); Lowrey, op. cit., 208-214; Kraines, op. cit., 481-482; Cobb, *Borderlands of Psychiatry*, 103-115; William G. Lennox, Proc. Soc. for Res. in Nerv. and Ment. Dis., 1946, 26:11-34; L. I. O'Kelly, *Introduction to Psychopathology*, 1949, 393-402, 431-434 (Prentice-Hall).

According to Cobb, recurrent attacks tend to follow the same pattern each time.

Some cases have, instead of attacks in the petit-grand-mal series, what are called "epileptic equivalents." These include "clouded states," also excitements, ecstasies, wanderings, or other activities which are peculiar, religious, fanatical, antisocial, or criminal. Such activities are not clearly planned; they occur in an abnormal state of consciousness; they last for minutes or hours; and the subject does not remember them afterwards.

W. A. Hunt, H. Strauss and C. Landis (1938) found about 20% of 128 epileptics curiously unresponsive to startle stimuli. Piotrowski (1947), using the Rorschach test on 25 epileptics, listed certain responses that might indicate brain lesions that gradually develop and affect the personality. It would be interesting to know how many of each group were idiopathic cases.

Many authors have described "the epileptic personality" as egocentric, irritable, and undependable; but these traits may well represent not epilepsy itself but reactions to the burden of epilepsy. Piotrowski concluded that epilepsy may occur in any personality type. Many epileptics have good personalities with no psychosis and live intelligent, useful lives.²⁰

Prevention and prognosis. Against idiopathic epilepsy, society should encourage its sounder more than its unsound stocks to multiply and should see that individuals who are predisposed to epilepsy have every kind of physical and mental hygiene.

Many epileptics gradually become dull, poorly remembering, slow thinking, irritable, and apathetic. These changes seem most likely to occur in the cases whose seizures began early in life (Piotrowski). In any case, however, such changes may result from organic damage, from psychological reactions to being epileptic, or from both.

Various drugs have been and are being developed that often reduce or prevent the seizures. Sociological placement, psychological training, and education have proved beneficial; astonishingly so in one case, a man 23 years old who had had attacks for 17 years. There are also organizations to help the epileptic find proper treatment, make his best adjustment, and be accepted as a person in society.²¹

²¹ Cf. Kraines, op. cit., 483-485; Cobb, *Borderlands of Psychiatry*, 109-115; Doris Twitchell-Allen, Arch. Neurol. and Psychiat., 1947, 57:617-622; William G. Lennox, Bull. Mass. Soc. Ment. Hyg., November, 1944.

Dementia Praecox—Schizophrenia

This great disorder or family of disorders Kraepelin (1899) called "dementia praecox" because, ordinarily, it comes on in adolescence or early adulthood and proceeds toward complete dementia. The disease involves, he added (by 1913), "a characteristic destruction of the internal associations of the personality affecting particularly the emotional and volitional sphere."

Bleuler (1911) took the disorder to be a group of diseases, rather similar to those known to be organic. In his view, the disorder is marked by unstable association of ideas. This unstable association appears in the patient's "autism," that is, allowing fancies free reign as "in mythology, in dreams, and in many of the morbid states," losing "contact with reality," and "disregarding . . . the inconsistency with reality." As a name for the whole disorder, instead of "dementia praecox" Bleuler suggested "schizophrenia" (etymologically, "split mind"). This name, though a misleading one, has become a synonym for dementia praecox.²²

Many a student has thought that the schizophrenic patient suffers from "a split between the intellect and the emotions." For example, a patient laughs while telling a delusion which we would consider sad. When he is told that his family has been wiped out, he understands the news, but is not disturbed by it. Upon closer analysis, however, we find that the "split" is not so simple. The patient does not understand the words, the delusion, himself, his family, life, and death as a normal person would; these things no longer *mean* to him what they would mean to a normal person. They mean *something* to the patient, if he is not too far gone, and the words fit together to make a sentence; but the objects, the words, and the sentence for him are somewhat vitiated, affectively and intellectually.

A number of students and popular writers have taken "schizophrenia" to mean that the patient has a split personality, like Dr. Jekyll and Mr. Hyde; and they say that an inconsistent upbringing, or a severe conflict, often produces a "schizophrenic person," a person with a "schizophrenia" between his ideals and his actions, or between, say, his loving side and his hating side. This usage is unfortunate, since no true schizophrenic is divided into the relatively well-organized and effective "sides" that appear in everyday abnormalities and psychoneuroses and

²² Cf. May, *op. cit.*, 440-447.

particularly in multiple personality. Cases of inconsistent sides, psychoneurosis, or even multiple personality should be called such, and the term "schizophrenia" should be either discarded or reserved for dementia praecox.

This disorder seems to reflect basically not a clear split, such as we called special dissociation, but a general crumbling, general dissociation, perhaps combined with much general inhibition. Upon that basic disorganization, however, there do appear various special dissociations, such as affects, ideas, and acts that occur without apparent cause and that seem to the patient to come from outside himself.

Incidence. Dementia praecox is the most common psychosis, both among first admissions and among the hospital residents. It occurs in all countries, races, and classes. In the United States, it accounts for about 16% of all first admissions (1947) and, as the cases seldom if ever recover completely, about 50% of the population of the mental hospitals. It accounts also for many less obviously psychotic invalids that are kept at home, also many tramps, beggars, paupers, and criminals. Altogether, there are perhaps a half-million cases of dementia praecox in the United States.

Among the first admissions in 1947 the median age for the males was almost a year younger than that for the females, and there were more males than females aged less than 20; yet the ratio of males to females was almost two to three. No one knows, however, how many males would have shown dementia praecox if they had not developed syphilitic, alcoholic, or other disorders in which they exceed the females.

The disorder becomes obvious in most cases in the twenties or thirties, in many, in the 'teens, and in some, in still earlier or later decades; but a great many of the victims show some tendency toward the disease during adolescence if not before.²³

Causes. Sufferers from dementia praecox are often reported to have been, from their early childhood, odd, sensitive, and withdrawn; a pattern that is termed "schizoid." Many like persons, however, do not develop dementia praecox; and many apparently normal persons do develop it. Myerson concluded that the abnormal disposition often noticed is not a cause but an early symptom of the disease.

²³ Cf. Dayton, *op. cit.*, 283; Landis and Bolles, *op. cit.*, 155-156; L. A. Pennington and Irwin A. Berg, *An Introduction to Clinical Psychology*, 1948, 301 (Ronald); PA 22 807.

Kraepelin interpreted dementia praecox as basically an endocrine or metabolic disorder. Menninger (1921) considered it a chronic delirium, perhaps precipitated by illness, conflict, worry, or any stress, in a susceptible brain injured by endogenic or exogenic toxins. Max Levin (1931) concluded that the deliriums and hallucinations of dementia praecox are mere symptoms of "the inefficiency of the instrument through which ideas are associated and satisfactory effective relations with the outer world maintained." Pavlov said the disorder is a chronic self-hypnosis induced through protective inhibitions in a weak central nervous system. Some investigators have seen a connection between dementia praecox and sleep, and have treated the disorder with prolonged sleep. Many have studied the brains, glands, metabolism, blood, circulation, motor ability, behavior, perception, learning, thought, and so forth, of dementia praecox patients. Many have looked into economic, social and psychological factors. Thus, according to some, often the patient has been a rejected, unloved child. Woolley (1953) emphasized various deep fears as essential causes. Many think that the patient develops a habit of withdrawing into himself, which habit makes him less effective, hence further withdrawn, and so on in a vicious circle. Many have reported combinations of causes. The results of all such investigations, however, are not conclusive, partly because what differences do appear between these patients and normal persons may represent less the causes than the effects of the disorder. Even parental rejection may derive from a schizophrenic tendency in the parents.

A number of workers have produced schizophrenic effects experimentally, with drugs, stoppage of the carotid arteries, and so on. Still, the relation of any such findings to dementia praecox, or to its essential causes, is not clear.

Kretschmer (1925) stated that dementia praecox occurs especially in the "asthenic" or "leptosomic," the cerebral, thin type of person. Sheldon (1942) supported Kretschmer's suggestion, with qualifications, and called the type "ectomorphic." This type of person, he found, tends to be shy, socially inadequate, and solitary. Linford Rees (1947) introduced further qualifications, but found some significant predisposition to dementia praecox in this type. Other types also develop the disease; but, according to Rees, the outlook for them is more favorable.

Whatever the role of physical type, it seems clear now that one or more predispositions to dementia praecox are inherited, perhaps complexly. Kallmann showed that dementia praecox patients have an unusually large percentage of relatives with the same disease. The

objection that all the patients may have absorbed the disease from a schizophrenic family environment is answered by the incidence of dementia praecox in children of such descent who are brought up among normal people, and especially in many identical twins who are reared in different environments yet develop the disease within a few months, weeks, or days of each other. That the inheritance is of predisposition, however, appears from the conclusions that, if one identical twin develops dementia praecox, the chances that the other will develop it when the two are brought up together are about 91%, but when they are brought up apart, 78%.²⁴

General symptoms. "The typical schizophrenic" is peculiarly out of touch with people and the world. He is not much interested in anything; he may even be more or less alienated from everything; and, except in the earliest stages of his disorder, he seems unable to regret his lack of interest or his alienation. Accordingly, he seems incapable of love for anybody or anything—love in Fromm's sense of vital affirmation of "life, happiness, growth, freedom."

He is often thought to love himself, or at least his own mental and physical processes, and to direct his life to conserve them. Upon closer acquaintance, however, he seems merely to avoid the bothersome and to be not so much interested as absorbed in his own processes. Thus he is seclusive; seclusive through what Glueck and Ackerman called passive encapsulation.

His processes have deteriorated, especially at the higher levels. He perceives things inefficiently, and interprets them queerly. His thought is both impoverished and distorted. He fails to grasp essential similarities, differences, and categories. His thinking is fantastic but concrete, and what use he makes of abstract terms is superficial. His ideas of cause-and-effect relationships are absurd. He cannot well define and hold to a problem. He has hallucinations, usually auditory, often visual, and sometimes other kinds. He also has delusions, nihilistic ("The world is not real," "I am not here," "I am dead"), persecutory, or grandiose. He feels that his ideas are often blocked, taken away from him, or

²⁴ Cf. Abraham Myerson, *The Psychology of Mental Disorders*, 1927, 54 (Macmillan); May, loc. cit.; Karl A. Menninger, *J. Kansas Med. Soc.*, 1921; Norman Cameron, in J. McV. Hunt (ed.), *Personality and the Behavior Disorders*, 1944, 2:861-921 (Ronald); PA 24 3300, 9 3323, 9 5711, 15 4246, 9 5717, 10 4489, 12 5344; Tomkins, *Contemporary Psychopathology*, 1944, 257-258, 269, 316 (Harvard Univ. Press); PA 22 3550, 23 246, 15 4267, 20 1506, 20 2738, 21 4439, 21 2227, 9 2739; Leopold Bellak, *Dementia Praecox*, 1947 (Grune); Landis and Bolles, op. cit., 313; PA 25 3316, 26 4944.

imposed upon him. His sleeping dreams enter into his waking thought. His waking thought is so bizarrely made up of notions and relics of notions that to anyone else it seems rather senseless.

His language is peculiar likewise. It may include various stereotypes and neologisms (new words, also old words used in new senses).

N. Cameron cited a patient of mediocre intelligence who, for years, had fantasied that he was a great engineer. When asked to complete the sentence, "My hair is brown because . . ." he replied: "Because it is a sort of hydraulic evering." "What does that mean?" "It means that it gives you some sort of a *color blindness* because it works through the *roots of the hair* and hydrasee. . . That is a study of the *growth of plants*, a sort of *human barometer*, hydraulic hydro-scenic method."

The patient's actions and feelings, too, are often inappropriate, incongruous, as seen by anyone else and sometimes by the patient himself. Without warning, he may become mute or talkative, passive or active, erotic or antagonistic, indifferent or assaultive, stuporous or excited; and, at a given moment, his action, speech, writing, and mood may be inconsistent with one another.

Evidently the dementia praecox patient lacks insight and self-direction.

As various students have noticed, he is much like one asleep, lost in his dreams. He is also like one dulled, addled, blocked, or driven by fear.²⁵

Different patients' "dreams"—their waking thoughts, feelings, and actions—like the sleeping dreams of normal persons, involve different degrees of flexibility and of contact with reality. These differences appear in the several "types" of the disease.

Types of dementia praecox. Since Kraepelin, it has been customary to classify the cases of dementia praecox under four types, simple,

²⁵ Cf. Wendell Johnson, *People in Quandaries*, 1946, 305-312 (Harper); Erich Fromm, *Man for Himself*, 1947, 130 (Rinehart); PA 10 4064; Maria Rickers-Ovsiankina, J. Gen. Psychol., 1937, 16:153-196; Bernard Glueck and Nathan W. Ackerman, J. Nerv. Ment. Dis., 1939, 90:317; Harriet Babcock, *Dementia Praecox*, 1933 (Science Press); Alice F. Angyal, *Ch. and Personality*, 1942, 11:108-127; Eugenia Hanfmann, J. Abn. Psychol., 1939, 34:249-264; S. J. Beck, in J. S. Kasanin (ed.), *Language and Thought in Schizophrenia*, 1944, 91-102 (Univ. of California Press); however, G. K. Yacorzynski, Am. Psychologist, 1950, 5:322; Dan L. Adler, Psychol. Bull., 1942, 39:507; Kurt Goldstein, in Kasanin, op. cit., 17-40; Kasanin, *ibid.*, 41-49; John D. Benjamin, *ibid.*, 65-90; Norman Cameron, *ibid.*, 50-64; PA 20 445, 4640, 22 4549, 15 5174, 11 3274, 16 2666; Johnson, op. cit., 304, 504; quoting from Cameron in Kasanin, op. cit., 56; Mühl, *Automatic Writing*, 1930, 136; Cameron, in Hunt, loc. cit.; PA 24 4725, 23 1678; Karnosh, op. cit.

hebephrenic, paranoid, and catatonic. As perhaps every patient presents symptoms of more than one type at a time, and many a real schizophrenic seems not to fit any of the four, Kraepelin and others after him suggested further types. These four, however, are the most accepted ones.

Simple dementia praecox, or *dementia praecox simplex*, embodies mainly the schizophrenic loss of interest, initiative, and self-direction; other symptoms are not conspicuous. The patient is apathetic. He does not intrude his ideas upon others. His sexual reactions are likely limited to masturbation or to erotic dreams and daydreams. In general, he is harmless. Thus the simple type seems closest to a quietly dreaming sleep.

Hebephrenic means, etymologically, youth-minded. As compared with the patient with simple dementia praecox, the hebephrenic one is livelier, in a childish way. He is silly. His thought is cluttered with queer ideas, hallucinations, and delusions, many or all of which he takes as jokes. He is given to neologisms, mannerisms, and foolish actions; to incongruous affects; and to childish changes of mood. He is like a sleeping person with lively but trivial dreams.

Catatonic means down-tone. Of the several types of dementia praecox, the catatonic patient appears the most suddenly and completely withdrawn. Characteristically, he is negativistic—indifferent, resistive, or acting contrary to whatever is suggested. Thus he is mute. Likely he refuses to eat, drink, or eliminate. He is prone to catalepsy—waxy flexibility, or bodily rigidity, or both. He stays in one spot, perhaps in one posture, for hours. He may appear not to notice anything, even a person who is speaking to him, shouting in his ear, or putting him in various postures.

Actually, many a catatonic patient, while seeming most wooden, notices and remembers what goes on about him and, if he gets better, reports it accurately. More than one catatonic patient has seemed like a living statue for months; until one day, as the chief doctor walked by, the patient picked up a chair, killed the doctor, and resumed his statue-like condition.

Many catatonics have alternating periods of depression, excitement, and stupor. The stupor is more apparent than real, for it allows clear perception. The excitement usually involves hallucinations and delusions, and often, stereotyped or impulsive speech and behavior. During the excitement especially, the patient may even commit murder or suicide.

The catatonic seems like a person who is partly asleep and partly awake with nightmares.

Paranoid, beside- or amiss-minded, dementia praecox is marked by more or less systematized delusions. The delusions are persecutory, grandiose, or both, and may be accompanied by hallucinations. The paranoid patient takes his delusions seriously. For some time, the delusions become more systematized, and the patient is likely to be aggressive, even dangerous, in terms of them. He may also have periods of excitement. Then, for months or years, the paranoid praecox patient seems the best preserved of all the types. Indeed, his vigorous manner and ready explanations often convince laymen that he is really persecuted and not insane.

The paranoid one reminds us of the person whose dreams persist in waking life as obsessions.²⁵

Incidence of types. Reports of the incidence of the several types among first admissions vary considerably, most likely because the types are diagnosed by different diagnosticians. A compromise estimate for first admissions with dementia praecox is, for the simple type, about 5%; hebephrenic, 25%; catatonic, 20%; and paranoid, 50%.

Diefendorf reported that, of first admissions with dementia praecox in Connecticut before 1907, 34% were under 25 years of age; but persons younger than 25 made up 45% of the hebephrenic type, 38% of the catatonic, and only 11% of the paranoid. He did not recognize a simple type. More recent studies agree that the paranoid type develops later than the others. Many simple, hebephrenic, and catatonic patients, however, show paranoid symptoms after a time.²⁶

Causes of the types. There have been efforts to account for the several types physically, economically, socially, and psychologically. To illustrate only the psychological efforts: J. J. B. Morgan (1928) thought that the simple type represented sheer giving-up, indifference, no trying hence no failure; the hebephrenic, regression; catatonic, trying to repress; and paranoid, defense. He also thought that the hebephrenics had the most infantile physique. E. J. Kempf (1930) suggested that the catatonic patient is a basically egotistic, self-pitying,

²⁵ May, op. cit., 449-455; Cameron, *The Psychology of Behavior Disorders*, 1948, 462-483 (Houghton Mifflin); Kraines, op. cit., 434-435; Cameron, in Hunt, op. cit., 2:892-896; May, 457; Lowrey, op. cit., 147, 182-190; A. Ross Diefendorf, *Clinical Psychiatry*, 1907, 219 (Macmillan); PA, *passim*.

sulking person, blaming others for his unhappiness, daydreaming of dying and making the others sorry; at the same time developing a metabolic slump and a mode of breathing that make for stupor. Still, the causes of the types remain uncertain.

The types and the category. That the four types are not separate diseases is suggested by the following observations: Perhaps every patient overlaps two or more types, especially when examined closely. Many a patient seems to represent first one type, then another, as his disease progresses. The several types come together, apparently, in the terminal dementia. The inheritance seems to be not of this or that type but of predisposition to dementia praecox. The type at first admission seems to depend upon the patient's general health and other circumstances at the time (Kallmann).

On the other hand, many a patient represents one type predominantly; and 100 badly deteriorated patients, when given sodium amytal, showed their original types (O. Kant, 1943). Moreover, the several types' characteristic symptoms and prognoses (to be mentioned shortly) have suggested to various students that two of the types are continuous or closely connected with two disorders yet to be presented, namely, the catatonic type, with manic-depressive psychosis, and the paranoid, with paranoia.

Bellak, after sifting the many studies reported between 1936 and 1946, concluded that dementia praecox is not a disease entity but reflects many and various etiological factors. The patients are alike merely in that they are "incapable at the time of adequate social functioning." All the cases can be thought of as occurring along "*a continuum from a hypothetical locale of complete psychogenicity to a hypothetical locale of complete organicity*"; and each of these poles may represent various special causes. This scheme allows for native and acquired predispositions, and for precipitating causes, physical and mental.²⁷

Prevention and prognosis. According to Kraepelin and many others, under very favorable conditions, perhaps, a person who is predisposed to dementia praecox may be kept from developing the disease. If he does develop it, he is almost sure to get worse until he is wholly demented or dies, likely of tuberculosis. He may stop deteriorating

²⁷ Op. cit., 49-51.

for a time at least, and he may even improve; but a complete recovery is not to be expected. Not a few psychiatrists, when a patient with supposed dementia praecox recovers, have preferred to change the diagnosis.

The outcome depends somewhat upon the type of patient. Without modern methods of treatment, at least, the patient with simple praecox, if his parents can tolerate his idleness and unsociability and get him to do a few routine tasks, may live at home for years without developing further symptoms. In a good institution he may hold up similarly. Eventually, however, he deteriorates. The hebephrenic patient deteriorates quickly toward a degraded, vegetative existence. The catatonic patient, surprisingly enough, sometimes recovers; but usually this type develops further symptoms and deteriorates. The paranoid one, for perhaps many months or years, deteriorates slowly if at all; but, eventually, he sinks into dementia.

A few observers have thought that the deterioration in dementia praecox is only apparent; and they point to some pull-ups in patients under stress, perception during stupor, rational automatic writing by supposedly irrational patients, and results on intelligence tests. We know, however, that patients with some other disorders can pull up on occasion and can perceive during stupor; that a severe psychoneurosis can mimic dementia praecox; and that some intelligence tests can be passed more formally than substantially.

Kallmann, a leading proponent of heredity as a cause of dementia praecox, insists that the heredity does not justify a do-nothing attitude about prevention and treatment. With the predisposition granted, the task remains to mobilize the patient's constitutional resistance, correct any biochemical dysfunction caused by the predisposition or otherwise, and improve the environment so far as possible. Thus more knowledge of the genetics should focus and improve the prevention and treatment.

Physical, economic, social, and psychological methods have been tried and are being developed. Recent methods include various occupational, shock, brain-surgical, medicinal, psychological individual and group therapies, also combinations of methods. In many cases the results are encouraging and, in some, dramatic; yet there are many failures and relapses.

Reports of improvement range from 20% to 66% of the cases. Contrary to many earlier reports, the order of highest percentages of improvement reported for the several types goes down from simple praecox through the hebephrenic and catatonic types to the paranoid.

For a good prognosis, regardless of method of treatment, the most favored patient is the one who seemed normal beforehand; is endomorphic (visceral and roundish); is intelligent; is affectively preserved; is accessible; developed the disorder between adolescence and 40; developed it suddenly; developed it from exogenic causes; and is treated soon.

Both for dementia praecox in general and for the several types, reports of success with each method differ considerably, and apparently will continue to differ until more precise criteria of diagnosis, improvement, and recovery are worked out.²⁸

Manic-depressive Psychosis

This disorder, too, is perhaps either single or a group. The several names, manic-depressive psychosis, psychoses, or reactions; affective psychosis; circular or cyclic insanity; and cyclothymia, all suggest the periodic swings of general disposition that characterize the disease. Commonly, an adjective is added, for example, manic-depressive manic, to indicate the patient's state.²⁹

Incidence. For first admissions, manic-depressive psychosis almost ties with the senile disorders for second place. It covers about 9% of first admissions and about 10% of the residents in mental hospitals.

The disease is more prevalent in New York State among Negroes than whites, and, in the United States, among the foreign-born than the native-born, and among the urban than the rural population (H. M. Pollock, 1931).

Among the admissions in 1947, females outnumbered males more than two to one. They outnumbered them in every age group, but especially in the 20's, where the ratio was four to one.

The median age of all females admitted with this disease to public hospitals was about 38, and to private hospitals, 41. The corresponding medians for males were about 44 and 45.³⁰

According to Landis and Farwell (1944), the average age for all

²⁸ Cf. Edith M. Furbush, *Ment. Hyg.*, 1922, 6:288-299; Tomkins, *op. cit.*, 352; PA 6 3225; Mühl, *op. cit.*, 137; Bellak, *op. cit.*, 136-137; PA 23 873, 1405; Oskar Diethelm, *Treatment in Psychiatry*, 1950 (C. C. Thomas); Edwin G. Boring, *Psychol. Monog.*, 1913, 15:No. 2; White, *op. cit.*, 532-536, 549-558; PA 22 864; Bellak, 402-403; May, *op. cit.*, 230; PA 22 1802, 25 6319.

²⁹ Cf. Cameron, in Hunt, *op. cit.*, 2:873-883.

³⁰ PA 6 3241.

persons admitted with the disease rose steadily from 30 in 1913 to 44 in 1946.

Causes. The causes of manic-depressive psychosis have been looked for in about the same directions as for dementia praecox, and with like results. Manic-depressive psychosis seems to derive variously from inherited predispositions, acquired dispositions, and precipitating causes, physical and mental.

Kretschmer, also Rees (1947), and others found manic-depressive patients significantly more pyknic or endomorphic than schizophrenics. Various investigators reported disproportionate incidence of mental disorder, especially manic-depressive, among the relatives of manic-depressive patients. Of 23 pairs of identical twins, the psychosis appeared in one each in 7 pairs, but in both in 16 pairs. From such evidence, Cobb concluded that probably a dominant gene transmits the inherited predisposition.

Rennie (1942) studied 208 clear cases of the disorder carefully and followed them for at least 20 years. Apparent causes included heredity for 63% of the patients; somatic difficulties, mostly cardiovascular, for 38%; and definitely disturbing life situations, psychological stresses, for 79%.³¹

General symptoms. In a few of Rennie's cases, the disorder came on within a week; in most, over one to six months; and in a few, one to three years.

Unlike the dementia praecox patient, the one with manic-depressive psychosis, if his illness is not extreme, seems mentally disordered not in kind but in degree. He remains in our world. We can talk with him; his attention and replies, though impoverished or flighty, are understandable; and his actions and explanations fit his mood. He seems, indeed, to have a normal person's mood abnormally enhanced and prolonged.

The "mood" may be manic, depressive, or what looks like a combination of these and perhaps other symptoms. Each such mood is usually considered a phase of the disease.

³¹ Cf. Edward A. Strecker, Franklin G. Ebaugh, and Jack R. Ewalt, *Practical Clinical Psychiatry*, 1947, 207-234 (Blakiston); PA 11 3741, 16 4846, 20 829, 4123; Landis and Bolles, op. cit., 132; Cobb, *Foundations of Neuropsychiatry*, 219; C. Macfie Campbell, *Rev. Neurol. and Psychiat.*, 1914, 12:175-198; Paul H. Hoch and Joseph Zubin (eds.), *Depression*, 1953 (Grune).

The manic phase, often called mania, may occur in any degree, from mild to delirious. Characteristically, in this phase the patient is elated, speeded up, overmotivated and underinhibited. He is too much aroused by too many excitants—stimuli, other people, the world, and his own impulses. He is subject to illusions that harmonize with his state; to hallucinations likewise, most of them auditory; and to delusions of great projects, wealth, power, and prestige. He is highly distractible, in perception, thought, and activities. He has a flight of ideas through uncontrolled, yet intelligible, associations. His talk flows similarly. Often it turns upon a "klang association" or similarity of sound, and glitters with jokes, criticisms, gibes, obscenities, profanities. Often he sings, shouts, or screams.

One of Bluemel's patients "declared that he might be a nut, but he would be a hard one to crack. Relative to a lunacy charge he said that he might admit the allegation but he would defy the alligator. He called attention to his initials, G. T. H., and challengingly stated that they meant 'Go to Hell.'

"... The manic often carries on a voluminous correspondence and he marks his letters *Confidential*, *Urgent*, *Immediate*, etc. Letters are sent by air or special delivery. Letters are emphatic and display a good deal of underlining. One woman underscores the 'urgent' parts of her letters with bold sweeping lines an eighth of an inch thick. Another imparts emphasis by underlining words four or five times. Letters are often caustic. A woman patient begins a letter to her doctor with 'Dear Sir, Doctor, or whatever you call yourself.' Another begins quite simply 'Dr. Pfff.' A third adds the comment that M. D. stands for 'mentally deficient.' When under hospital care the patient is unusually prolific in his correspondence. He writes his family, abusing them for depriving him of his freedom. He may write to lawyers, judges, and newspapers demanding his release."³²

The manic patient is prone to turn out letters, essays, poems, paintings, musical compositions, drawings, plans for inventions or other projects, according to his interests, in quantity, the quality deteriorating the more manic he is. Thus he is said to be overproductive.

Confident and impulsive, the patient is likely to be domineering, erotic, self-decorating or denuding, destructive, or, especially if thwarted in any way, assaultive and often dangerous.

If not quieted by baths or drugs, he keeps going all day and often all night. Obviously he is unfit to be at large.

³² Bluemel, op. cit., 458, 459.

The depressive phase, or melancholia, occurs likewise in any degree, from mild to stuporous. The typical depressed patient is sad, slowed down, undermotivated and overinhibited. He is too little aroused by anything vital. He perceives and understands, in a dull way; but often he has illusions, hallucinations, and delusions that he is ailing, diseased, suspected, guilty, altogether unworthy to live. His thought, speech, and action are draggy or blocked. He is unconfident and indecisive. His sleep, eating, and elimination are poor.

On one topic, however, the depressed patient is liable to be too effective: suicide. Whether his depression be mild or acute, or whether or not he ever mentions suicide, he may accomplish it, despite specially protective quarters and devoted guardians. If he is not so protected, he may do away with his family and himself.

Many a manic phase is interrupted by brief depressions; and a depressive phase, by excitements. Other phases may perhaps be interpreted as greater mixtures of these and further symptoms.

Other phases include manic-depressive cases marked by rapid alternations; euphoric cases with speeded thought and decreased activity, or delayed thought and increased activity, or delayed thought and decreased activity; melancholy cases, with characterizations opposite to the foregoing pairs; and cases that are not euphoric or melancholy so much as furious, or suspicious, or agitated, or anxious, and with speeded or delayed thought and increased or decreased activity.³³

Types of the disorder. Here we shall consider only the manic and depressive states.

It is often supposed that the manic or the depressive patient must swing eventually from his present mood through a normal phase to the opposite mood and likely back again. Actually there are various types according to sequences; namely, manic-normal-depressive-normal, etc.; manic-depressive-manic-depressive; manic-normal-manic-normal; depressive-normal-depressive-normal; and other combinations.

Several authors have considered depression the more basic reaction. Thus, Freud pointed out that love for a person is [often, we should say]

³³ Cf. Cameron, in Hunt, *op. cit.*, 2:495-539; Strecker, Ebaugh, and Ewalt, *op. cit.*, 207-234; White, *op. cit.*, 496-500, 505-511; Myerson, *op. cit.*, 50; Landis and Bolles, *op. cit.*, 128-130; Graves, *op. cit.*; Anonymous, *A Letter to a Friend*, 1928 (Open Ct.); Geo. H. Kirby, *Rev. Neurol. and Psychiat.*, 1910, 8:8-23.

combined with some hatred from jealousy, rivalry, resentment, or defense against loving the person too much. If one person is emotionally dependent upon another, yet is disappointed in that other, he blames the other; yet, needing the other, he wants not to blame him, so blames himself instead, often for the very qualities for which the other is blameworthy. Consequently, if the loved person dies or is somehow unavailable, the bereft one is depressed through grief, helplessness, remorse for the hatred and further [especially introjected] bad qualities, self-blame [scapegoating], and, as suggested by Maslow and Mittelmann, self-abasement and self-punishment for his own and others' approval.

Freud took mania to be surmounting the situation with the energy otherwise bound in depression. As Maslow and Mittelmann explained, the manic patient, when emotionally dependent and disappointed, assumes the opposite condition; he tries to persuade himself that he is not dependent, sad, helpless, guilty, but strong, joyous, outgoing, and free!

W. A. White said that mania is activity both defensive against soreness and expressive of repressed patterns.

J. J. B. Morgan (1928) seemed to start with mania. In his view, mania is a direct attack upon a hostile world, also a release of pent-up emotions. When the attack fails, depression follows as a period of discouragement but also recuperation for the next attack.

Cameron found no basic physiological difference between mania and depression, and concluded that manic attacks may be depressive equivalents.

Perhaps there is truth in all these views and in further possibilities. For example:

James spoke of "the explosive will" and "the obstructed will" as extreme types. Roback noticed that a steamship company divided its inefficient captains into those who, in emergencies, responded rashly and those who took too long to decide what to do; and he remarked that the types are familiar in everyday life. We might call them the blow-ups and the shut-ups. Perhaps the manics represent especially the former, and the depressives, the latter. Since it takes more energy to blow up than to shut up passively, a person might become manic or depressive according to the weight of the stress, his general vigor, and his arousedness at the time. He might also swing from mania to depression as he becomes tired of mania and further discouraged; from

depression to mania as he becomes tired of depression and aroused; and from either phase to normal as he achieves some adjustment.³⁴

Of Rennie's 208 cases, 17 were manic only; 142, depressive only; and 49, cyclothymic, including both phases.

Causes of the types have been sought mainly along physical and psychological lines, but with no positive proof.

The category. Though many patients with manic-depressive psychosis do not show both classical phases, many go through both phases and perhaps others. The inheritance seems to be not of a phase but of predisposition to the disorder. Some identical twins come down with different phases (E. Braun, 1935).

Cobb, however, argued that the "typical cases" not only of manic-depressive psychosis but also of dementia praecox are only extreme types, and that many patients with mixed symptoms, manic, depressive, and schizophrenic, come between them. He therefore suspected that mania, depression, and dementia praecox are fundamentally one. At the same time, he thought that there was a difference in the inheritance, "the manic-depressive gene being dominant and the schizophrenic being recessive."³⁵ This would seem to make at least the purest type of manic-depressive psychosis a category.

Prevention and prognosis. Apparently the inheritance of the predisposition is complicated, or is offset by other inherited factors like vigor, so that there are various degrees of proneness to this psychosis. Prevention turns, then, upon adjusting the individual and his stresses to each other, so far as possible, through all eugenic, physical, economic, social, and psychological means; in other words through developing the best possible individuals and society.

When those who have the disease are merely kept from harm and from wearing out or bogging down physically, their first attacks are almost sure to pass off; in some cases after a few weeks, in most, a

³⁴ Cf. Freud, *Collected Papers*, 4:152ff.; A. H. Maslow and Béla Mittelmann, *Principles of Abnormal Psychology*, 1941, 454-455, 462-463 (Harper); PA 18 2830; White, cited in John J. B. Morgan, *The Psychology of Abnormal People*, 1936, 576-577 (Longmans); Charles Macfie Campbell, *Rev. Neurol. and Psychiat.*, 1914, 12:175-198; G. V. Hamilton, *Objective Psychopathology*, 1925, 96 (Mosby); Cameron, in Hunt, *op. cit.*, 2:886; Roback, *Psychol. Monog.*, 1918, 25:No. 5, 141-142. Cf. also E. S. Cowles, *Don't Be Afraid*, 1941, 47-53 (McGraw-Hill).

few months, and in some, longer than a year. Perhaps a third of the manics and half of the depressives never have another attack (estimated by weighting Rennie's results and those of G. Lundquist, 1945, chosen because of their long time spans). In the remaining cases (judging by Rennie's account), apart from the few chronic cases, perhaps two-thirds have one or more recurrent attacks of the same phase, and one-third, of alternating phases. Alternations are sudden or gradual. The intervals between the attacks are usually of several months or years, but range from a few days to many years. During these intervals the individuals seem not deteriorated but well. They remember their previous lives except for any severe parts of the attacks. Perhaps the cases that do deteriorate are complicated with dementia praecox or some other disorder. As the patients with recurrent attacks grow older, the attacks last longer, on the average (Pollock, 1931); and, according to some, the attacks become more frequent, severe, and depressive.

Studies of treatments are complicated by the fact that the patients usually recover anyway. Most essential, however, is expert physical and medical care, tactfully, even psychologically, administered under the supervision of a psychiatrist. Psychotherapy has seemed effective in some cases, especially at the beginning of the disorder or after shock treatment. The shock methods have shortened most attacks by perhaps 50 to 75%. How these methods effect their results, and just what all the results are, no one knows.

The outlook is best, on the whole, for the patient who is soundest, physically and mentally; whose disorder came on between 20 and 30 or 40; and who developed the disorder mainly from exogenic causes.³⁵

Paranoia

A number of psychiatrists have doubted that "paranoia" is anything more than a well-preserved paranoid praecox or other psychosis with systematized delusions. Many psychiatrists, however, consider paranoia a diagnostic entity marked by systematized delusions without enough deterioration or other stigmata to put the patient into another category. A person who has this disorder is called "a paranoiac," and is said to be "paranoiac" or, in the broad sense of the term, "paranoid."

More narrowly, "paranoid" means paranoiac-like. A person who

³⁵ Cf. Landis and Bolles, *op. cit.*, 128-132; PA 21 2623; Cameron, *The Psychology of Behavior Disorders*, 498; PA 6 3242; Cameron, in Hunt, *op. cit.*, 2:877, 882, Maslow and Mittelman, *op. cit.*, 464-466; PA 15 2234; Strecker, Ebaugh, and Ewalt, *op. cit.*, 234-245.

suffers from mere suspiciousness and rather mild or insignificant delusions is a "paranoid character," one who has a "paranoid condition." Psychiatrists take such a condition to be a potential or mild paranoid psychosis, most likely paranoid dementia praecox, if not true paranoïa.

The cases diagnosed as paranoïa or paranoid conditions are few; but their strange yet coherent ideas, arguments, and actions make them noticeable. In the free world, they are cranks, fanatics, prophets, troublemakers, or madmen, according to what they offer and what the public will accept. In the hospital, they are often troublemakers. Through insistent and smuggled messages, the paranoïac patient is likely to arouse relatives, friends, the police, sometimes the legislature and the governor, on his behalf and against the hospital authorities.³⁶

Incidence. The cases so diagnosed made up only a little over 1% of the admissions in 1947. Many of these patients came from the better-educated and economically successful level of the population. The 1947 admissions included men and women about equally. The median age for the men that year was 50.4, and for the women, 50.

Paranoid characters who are at large remain uncounted; and, in times of frustration, psychological ignorance, and propaganda, paranoid conditions are readily induced in religious, economic, racial, or national groups.³⁷

Causes. Heredity seems to play a part, in that the paranoid patients have more than the average percentage of psychotic if not paranoid relatives.

Many paranoid patients always were difficult, suspicious, and opinionated. Overholser and Richmond mentioned "adolescents who are sulky and disagreeable; who are arrogant and self-important, yet oversensitive, quick to see slights where none were intended; who get on poorly with their associates and absolutely refuse to take any blame, always shifting it upon others. They insist that they are never understood. A certain rigidity about them makes compromise impossible; one must always meet their terms."

Physical factors, like illness and drugs, precipitate delusions in cer-

³⁶ Cf. May, op. cit., 461-474; Cameron, in Hunt, op. cit., 2:904-909; Henry H. Goddard, *Am. J. Psychol.*, 1899, 10:438; Rolvix Harlan, *John Alexander Dowie and the Christian Apostolic Church in Zion*, 1906 (Antes).

³⁷ Cf. Landis and Bolles, op. cit., 179-185, Overholser and Richmond, op. cit., 150-160.

tain cases, and these delusions, when professed or acted upon by predisposed persons, become habits and commitments. Delusions are sometimes suggested by another person and are accepted likewise.

Freud considered the paranoid reaction a defense against homosexuality. In his view, the individual that feels sexual love for his own sex represses the love with hate; he projects the hate into others; through rationalization, he believes that they are his persecutors; and likely, through further rationalization, he believes that he is a superior individual. This mechanism seems to apply to some cases but not to others. Apparently, given sufficient predisposition, the delusions of paranoia may arise through overcompensatory, irrelevant, or wish-fulfilling daydreams and rationalizations from various needs and frustrations.³⁸

Symptoms. Paranoia seems to reflect some basic inadequacy or frustration, self-reference, suspiciousness, and tendency to fixed and elaborated ideas. The affects are depressive, expansive, or varying, and accord with the delusions. The delusions are persecutory, grandiose, or both. They focus upon one or more areas such as sex, romance, popularity, power, wealth, invention, reform, revelation, and justice. These qualities and areas define various authors' "types" of paranoia, persecutory, exalted, erotic, religious, litigious, and the rest.

The paranoiac finds evidence for his delusions everywhere: in people's activities, gestures, facial expressions, words, letters, books, and other possessions; in the press, the radio, and the arts; and perhaps in the weather and other natural events. Despite the systematized delusions and illusions, however, hallucinations usually are not prominent. Instead, the patient has vivid ideas that seem to approximate eidetic images and visions.

Most paranoid persons are not congenial relatives or friends. C. W. Miller studied 400 paranoid cases "without undue concern for the diagnosis attached" and found that about a third were unmarried; more than a third were incompatible, separated, or divorced (98 had 122 divorces); and only a quarter (104) seemed reasonably happily married. When the personalities and histories of those who had marital difficulties were examined, "sexual incompatibility, as such, was a rare

³⁸ Cf. Landis and Bolles, *op. cit.*, 180-184; Overholser and Richmond, *op. cit.*, 150-163 (from which the quotation is adapted); PA 5 2353 (in Tomkins, *op. cit.*, 394-397); 487-488, 552-553, above; PA 9 2309, 9 4652, 10 1455, 10 1543, 12 6434, 13 876, 13 1486, 13 6294, 16 3123, 17 2345, 17 2376, 21 1130, 23 253.

complaint, whereas uncontrollable outbreaks of temper, marked egocentricity, selfishness, a rigid make-up, a sensitive and brooding disposition, and unwillingness to discuss matters causing friction in the home were frequently mentioned." Of the 38 cases diagnosed as paranoia or paranoid state, only a tenth were unmarried, but nearly two-thirds were incompatible, separated, or divorced. These 38 cases "showed a higher incidence of unsatisfactory heterosexual adjustments than did any of the other large groups, just as these persons consistently demonstrated less ability to adjust well in all other kinds of social contacts." The paranoid person seems to consider his fellow men only as aids or enemies to his selfish interests.

Apart from his delusions and his personal relationships, the paranoiac is so well preserved that he is often effective, whether for good or ill. Many paranoiacs who have not been diagnosed and institutionalized carry on their vocations for years. One who was in an institution continued to contribute excellent articles to a leading journal in physical science. People who do not know the paranoiac's abnormality or recognize it as such think he is normal. Consequently, he can be very harmful through his systematic complaints, accusations, innuendoes, libels, perhaps lawsuits and propagandas, also through overt acts, even murder and dictatorship. The acts may be quite unexpected.

"Those psychiatrists who contend that paranoids are always *potentially* dangerous are probably right. . . . Both the silent, taciturn, brooding people and those who are suave and pleasant enough until their delusional system is touched upon may decide to take the law into their own hands.

"Every psychiatrist knows paranoid persons who have assaulted and sometimes killed people who had no personal relations with them. An attendant in a hospital, dismissed for neglect of his patients, made his way to the office of the superintendent and shot and killed him, blaming him for a long series of persecutions. A patient who had left the hospital on a writ of habeas corpus went to the West Coast and lived inconspicuously for several months. Then one day, while driving on a crowded street in the city, he leaned out of the car and shot a man in a car that was passing. This man, he explained, was the head of the gang that kept following and persecuting him. It was proved that the man was an utter stranger to him. In this case, the physicians at the hospital knew that the patient was dangerous. He had been assaultive and once before had attempted to kill a man whom he identified as the 'head of the gang.' However, the jury of laymen, confronted by the fine-looking, suave gentleman who had plausible answers to every-

thing the doctors could say about him, felt that if he ever had been psychotic he must now be recovered. Thus there came about the death of an entirely innocent man."³⁹

Prevention and prognosis. To prevent paranoia, we need all the ways that have been suggested for manic-depressive and other psychoses; ways of developing sound personalities and a wholesome society. Perhaps individuals liable to paranoia could be encouraged particularly against egocentric interpretations and notions and toward broad sympathies and open-mindedness.

Many youthful, episodic, paranoid or perhaps paranoiac cases outgrow the disorder, especially when given better emotional opportunities and personal enlightenment; but in some such cases the trouble returns.

Established cases are usually considered hopeless. Krafft-Ebing (1905) could not find a single definite recovery in more than a thousand patients. Henderson and Gillespie (1944) thought that there were perhaps six reliably reported cures in all the literature. Neither physical nor psychological treatments have had much effect. When well protected, however, some patients improve enough to be rather easily managed in the hospital.⁴⁰

Psychoneuroses

Since every preceding chapter has included psychoneurotic phenomena, here we shall survey the psychoneuroses briefly as mental disorders.

Psychoneuroses are, as we have said, essentially psychogenic disorders in which, as compared with psychoses, the personality remains relatively intact and insightful.

Of the many particular disorders that come under this definition, perhaps most doubtful as to psychogenesis are some so-called anxiety states, neurasthenias, and psychosomatic conditions whose causes are often mixed or obscure. Perhaps most doubtful as to personality intactness and insight are the multiple personalities. In these, however, each personality usually seems more intact and insightful, according to its endowment, than if the individual were psychotic.

³⁹ Cf. PA 17 2727; Cameron, in Hunt, *op. cit.*, 2:908; Charles W. Miller, *Arch. Neurol. and Psychiat.*, 1941, 45:954-956 (partly quoted); Bluemel, *op. cit.*, 416-424; Overholser and Richmond, *op. cit.*, 161-163 (likewise quoted); Karnosh, *op. cit.*

⁴⁰ Cf. Strecker, Ebaugh, and Ewalt, *op. cit.*, 339; PA 15 1774, 16 3613; May, *op. cit.*, 464; Overholser and Richmond, *loc. cit.*

No one should suppose that psychogenic means unreal. Intensely imagined pain is real pain; strongly suggested fear is real fear; deep amnesia for how to use a muscle is real disorder of that muscle; and habitual unhappiness is real unhappiness.

Incidence. Any estimate of the incidence of psychoneuroses depends upon definition and upon choice of sources. Cobb's estimate, shown earlier in the chapter, included only those patients who sought or were advised to seek therapy for their psychoneuroses; and it excluded stammering, which might well be included, also many cases of alcoholism, drug addiction, syphilis, and likely other disorders that (in many cases) mask psychoneuroses. Taken together, his psychoneurotics, stammerers, say a third of the alcoholics, and some others might come to 4% of the population of the United States. Actual admissions to mental hospitals on account of psychoneuroses in 1947 were only about 3½% of all the admissions to these hospitals. All such figures fail to include most of the psychosomatic and other psychoneurotic complaints which, as remarked in the first chapter, have seemed to constitute about half of the average physician's practice. The figures also fail to include the multitude of psychoneurotic sufferers who resort only to popular healers, to quacks, to crude home treatments, or to no treatment. According to Lowrey, "it is usually accepted that about 10% of the adult population suffers from frank neuroses."

In World War I, in some of the great British offensives 40% of the soldiers who were returned from the front on account of disabilities had psychoneuroses. In World War II, among Canadian troops, 16% of those who were returned likewise had psychoneuroses, and another 26.5% suffered from gastric ulcers which are considered at least largely psychogenic. In neither war did the psychoneurotic casualties seem to increase among the civilian population as a whole; though they may have increased in some groups and decreased, through the challenge of the war effort, in others.

"Racial" differences in native predisposition to psychoneuroses have been claimed but not proved. Family differences, however, seem evident.

As for the sexes, in the 1947 admissions in the United States the women outnumbered the men nearly 2 to 1. The preponderance of women was greater in the private than in the state hospitals. Perhaps the women's education and conditions of life accounted for much of the difference, and perhaps many psychoneurotic men were admitted under

other categories. In Southwark, a poor and crowded section of London, during the air raids of World War II the resulting emotional and psychoneurotic troubles were reported for more than 3 men to every 2 women. Perhaps these men included many who had been rejected for military service because they were unstable, and some who were disturbed at being rejected for any reason.

The median age for the women admitted with psychoneuroses to state hospitals in the United States in 1947 was 36, and for the men, 36.7. The corresponding ages for the private hospitals were 39 and 41.5.⁴¹

Causes. Different authors have emphasized different causes of psychoneuroses. Perhaps each of the possible causes mentioned for mental disorders in general has been considered for psychoneuroses. Hereditary predispositions; organic and physical imbalances, defects, injuries, illnesses, disabilities, and exhaustion; economic burdens and uncertainties; social pressures; family situations; spoiling and sundry psychological factors; also special causes like frights, humiliations, sexual bad impressions and indulgences, and various shocks; conscious and subconscious interests, their frustrations and conflicts; guilt feelings; suggestions; childhood illnesses; personal danger; worry; and rewards for illness—each of these has been thought more or less basic by some student or group.

For many causes there is impressive empirical or experimental evidence; for example, hereditary and organic factors (various students); weak fathers and strong mothers (for 64 out of 100 hospitalized men, D. M. Hamilton and Wall, 1942); frights, bad impressions, suggestions, difficulties, frustrations, daydreams of having this or that symptom, and so forth (Baglivi, Sydenham, Whytt, Cullen, Charcot, Freud, Janet, Prince, Horney, and many others, ancient and modern); conflicts (Freud, Janet, Prince, Horney, and others likewise); childhood illnesses (D. M. Hamilton and Wall, and others); personal danger (the war psychiatrists); and rewards for illness (experience with military and industrial compensation).

Experimental workers have produced neuroses in animals through frustrations and other stresses.

In World War I, most of the severely wounded soldiers were free

⁴¹ Cf. 567, above; Lowrey, op. cit., 226; William H. Dunn, *Psychol. Bull.*, 1941, 38: 497-504; Abraham Myerson, *Ment. Hyg.*, 1920, 4:65-72; R. D. Gillespie, *Psychological Effects of War on Citizen and Soldier*, 1942, 106ff. (Norton).

of neuroses until they were physically recovered and ready to go back into the fight; then many developed neuroses. War prisoners, as a rule, were free of neuroses other than those that reflected the stresses of imprisonment.

From what we understand of dynamic and abnormal psychology and psychoneurotic cases, it seems evident that different causes and their combinations and accumulations account for different cases, even cases that look much alike. Perhaps all the causes can be brought together in the statement that the psychoneuroses result variously from any type or types of stress, including conflict; from dissociation; from learning inadequate reactions; from failing to learn adequate reactions; and from all the exogenic and endogenic factors, including native and acquired interests and limitations, that determine stress, dissociation, and learning.⁴²

General symptoms. The psychoneuroses show a great variety of symptoms which we shall outline in connection with the various types. Most people have experienced many of these symptoms, some of them perhaps for considerable periods. In the psychoneuroses, however, the symptoms are relatively severe and persistent; yet the general personality and insight remain relatively sound.

The symptoms differ from case to case. The most typical case is likely to lack some or many of the symptoms that we shall list for his type of psychoneurosis, and to have some symptoms of the other types. In many cases, at least some of the symptoms are fairly constant. In some, there are recurrent attacks of the symptoms; and these attacks may be more or less stereotyped. In most cases, however, the symptoms

⁴² Cf. C. Macfie Campbell, *Am. J. Psychiat.*, 1923, 2:367-376; Landis and Bolles, *op. cit.*, 82-125; Gillespie, *The Common Neuroses*, 1937, 48-105, 166-180 (Longmans; copyright, E. Arnold); Janet, *J. Abn. Psychol.*, 1921, 16:150-160; T. A. Ross, *op. cit.*, 8-27; PA 15 4664; Gaylord P. Coon and Alice F. Raymond, *A Review of the Psychoneuroses at Stockbridge*, 1940, 6-8 (Austen Riggs Foundation); John Hughlings Jackson, *Selected Writings* (James Taylor, ed.), 1931, 97; Matthias Gans, *J. Nerv. Ment. Dis.*, 1946, 103:478-479; Myerson, *op. cit.*, 64-70, *Am. J. Psychiat.*, 1936, 93:285-297; Laurent, *op. cit.*, 26; PA 1 1745; Charles D. Aring and J. Fremont Bateman, *J. Am. Med. Assn.*, 1937, 109:1092-1093; Millais Culpin, *Recent Advances in the Study of the Psychoneuroses*, 1931, 195-200 (Blakiston); Lowrey, *op. cit.*, 229, 231; Emanuel Miller (ed.), *The Neuroses of War*, 1940, 15 (Macmillan); PA 3 2672; George G. Campion and Grafton Elliott Smith, *The Neural Basis of Thought*, 1935, 130-131 (Harcourt); Ernest R. Hilgard and Donald G. Marquis, *Conditioning and Learning*, 1940, 280-293 (Appleton-Century); PA 9 274; Tomkins, *op. cit.*, 163ff., 398ff., 414ff.; H. S. Liddell, in Hunt, *op. cit.*, 1:389-412; PA 21 3053; Gordon W. Allport, *Personality: A Psychological Interpretation*, 1937, 199 (Holt); Roy R. Grinker, in Alexander, French, and others, *Psychoanalytic Therapy*, 1946, 337 (Ronald); Milton H. Erickson, *Brit. J. Med. Psychol.*, 1935, 15:Part 1, 34-50; Robert P. Knight, *Bull. Menninger Clinic*, 1953, 17:1-12.

vary more or less from day to day or even from moment to moment; and the attacks are likely to vary.

The symptoms often mimic those of organic disorders and are easily confused with them; but the psychoneurotic symptoms seldom duplicate exactly the organic ones, and usually they are quite different. A psychoneurotic symptom is likely to be curiously selective and to change as an organic one would not. For instance, a psychoneurotic anesthesia in the hand may have a pattern that, if organic, could derive only from a most complex and unlikely set of neural lesions. The psychoneurotic anesthesia varies perhaps with fatigue, excitement, suggestion, or the patient's own activities and reflections. Ross noticed that one woman is completely fatigued by washing her niece's hair, but not by bicycling for 20 miles. A man can eat fish but not chicken, or beef but not mutton. Perhaps the hairwashing ceases to fatigue the woman when the child's mother dies, and the man can eat chicken when the poultryman's daughter consents to marry him. A psychoneurotic paralysis may affect walking and running forwards but not backwards or sidewise; often the muscles do not atrophy as in organic paralysis, though they may atrophy more; and, if the house catches fire, the psychoneurotically paralyzed person most likely moves forward and out on his own legs.

It does not follow that the psychoneurotic patient is a malingerer. He can be partly a malingerer; a malingerer can be psychoneurotic; and psychoneurosis can begin with malingering. Malingering, however, is consciously motivated. Psychoneurosis, whether it began so or not, is subconsciously motivated.

A given patient's different symptoms, such as special dissociations, moods, and suggestibility, are often obviously interrelated and tend to vary either together or as substitutes for each other.

Many attacks are set off by obvious excitants; for example, one person has a phobic attack whenever he sees a cat. Many other attacks derive from excitants that are numerous or obscure. Some attacks seem to come from sheer accumulation of energy in the psychoneurotic system, much as a healthy person breaks out into activity after any quiet period. Such "spontaneous" activity is perhaps most striking in certain cases of multiple personality.

Many a psychoneurotic person covers his fear, sexual abnormality, indecision, or other inadequacy with compensatory eating, supposedly normal sexual activity, gambling, alcohol, popular attention, "strong-mindedness," even heroism, or some other special reaction to stress.

In general, the psychoneuroses reflect faulty learning. Under stress or dissociation or both, there occurred whatever reactions were most readily released then. These reactions were unduly impressed; and likely they have been rearoused by various excitants, and have been reinforced, developed, and systematized with allied reactions by attention, sympathy, material rewards if not indemnities, and leisure. These reactions are now the readiest that the psychoneurotic person has for his situation as he understands it, and naturally he fears to give them up. In any case, they make against normal relearning and adjustment.

Thus the psychoneurotic lacks integration. The lack appears in one or more of the aspects of integration, namely, coordination, as in all neurotic conflicts, contractures, tremors, and tics; richness, as in neurasthenic, psychasthenic, and other narrow preoccupations; unity, in the various special dissociations; and stability, in the sudden changes of mood and efficiency in divers psychoneuroses.

Together with his lack of integration, the typical psychoneurotic lacks maturity of personality. Maturity implies coordination, richness, unity, and stability. The psychoneurotic is too given to his inadequate reactions, and often, whether as cause or as effect, too self-centered and self-negligent, hence undeveloped, to be mature.

The psychoneurotic is most likely irritable, anxious and tense, or depressed, or dull, and often draggy in the daytime and restless at night. He may, however, seem contented, even childishly happy, through dissociation of his problems from consciousness. No doubt every psychoneurotic is happier with his psychoneurosis than he would be without it in view of all the circumstances, external and internal, as he understands them; but he lacks the happiness of an integrated person of his age and potentialities.

Evidently, the psychoneurotic is maladjusted in his feeling, acting, and thinking, according to his particular symptoms and the demands that are put upon him.⁴³

Types. Both the classical and the newer names for types of psychoneuroses have been used in different senses by different groups, and suggestions are always being made for revising the current classifications and definitions. This confusion reflects the almost endless variety of symptoms, their frequent changes, and their overlappings among

⁴³ Cf. Ross, *op. cit.*, 31-32; Miller, *op. cit.*, 17; Janet's and Prince's works, *passim*; Prince, *The Unconscious*, 1914 or 1921, 621; Alexander and French, *op. cit.*, 74; PA 3 990; the foregoing note; etc.

the so-called types. As Sydenham expressed it, "The shapes of *Proteus*, or the colours of the *chameleon*, are no more numerous and inconstant, than the variations of the hypochondriac and hysteric disease." Whytt added that "the hypochondriac disease is not more unlike the hysteric, than this last is often unlike itself."⁴⁴ For want of a better course, we shall present a rough classification under clinical labels that seem most traditional, current, or self-explanatory.

Association neuroses is a term that Prince introduced in 1890 and is no longer in vogue; but it points well to *abnormal redintegrations that are relatively simple* yet sufficiently abnormal to be called *psycho-neuroses*. Prince applied the term to those pains, swellings, contractions, lamenesses, nauseas, vertigoes, lactational sensations, blushings, seasicknesses, vomitings, hay fevers, asthmatic attacks, anxieties, depressions, vivid images, and so on, that are mainly reactions to associates of their original excitants. The term seems applicable to many stereotyped, abnormal feelings, attitudes, and other reactions, including some general psychoneurotic attacks, that recur through fairly simple association.

Previous chapters cited abnormal redintegrations of dizziness, disgust, nausea, vomiting, pain, fear, hatred, anger, tender emotion, sexual response, submissiveness, grief, joy, ecstasy, guilt, sensory and perceptual disorders, muscular disorders, convulsions, illusions, hallucinations, psychosomatic effects, and various inhibitions and disassociations.

Excessive sentimentality about news of weddings, mementos of childhood, old people, or any object that touches off the sentimental reaction regardless of the realities can amount to an association neurosis.

A nineteen-year-old college student went swimming one evening with a girl of about his age. During the swimming, the girl shampooed her hair with a popular brand of soap. Following this, the young man seduced her without contraceptive precautions. For several weeks he lived in terror lest the girl not menstruate at her next period; and he was tremendously relieved when she informed him that she had had her period normally. Months later, this student entered a college friend's room. The friend, who had just shampooed his hair with the

⁴⁴ Sydenham quoted by Robert Whytt, *Observations on the Nature, Causes, and Cure of Those Disorders Which Have Been Commonly Called Nervous, Hypochondriac, or Hysteric*, Second Edition, Corrected, 1765, 96 (Edinburgh); Whytt, 105. Cf. Janet, *The Mental State of Hystericals*, 1901, 520 (Putnam).

same brand of soap, greeted his visitor with the words, "Smell how clean I am." The first student sniffed, cursed fluently, and then explained that the odor of that soap always caused him to have an erection and a precipitate orgasm, which was exactly what had occurred. This student promptly became the butt of many practical jokes involving the special soap.

According to Mills, a boy of 13 had a convulsion which was attributed to fright. During the next 10 years he had frequent minor spells; and on the same day of the month, October 18, every year for four years he had a severe seizure.

Some psychoneuroses in adults reflect infantile birth theories. For example, a high-school girl was kissed by a boy, enjoyed it, felt guilty, and soon developed an obsession to have bowel movements. Menninger found that when she was seven years old she had believed, and apparently still did believe subconsciously, that impregnation comes from some erotic pleasure, and that delivery is anal. Here it would seem that the erotic urge reintegrated the neurotic pattern. When the ideational and emotional linkage was brought out, she was cured.⁴⁵

Broadly considered, all the psychoneuroses—psychogenic anxieties, fatigues, obsessions, special dissociations, disparate personalities, depressions, abnormal symbolisms—are learned patterns, and involve various learned inhibitions and dissociations. In many psychoneuroses, however, aspects other than association are so outstanding as to give them special names.

Habit residuals, such as persistent, unnecessary limping after an organic disorder that did cause limping for a time, may be considered a special group of association neuroses.⁴⁶

Perhaps the numbness that continues for weeks or months after frostbite in many persons is a special variety of habit residual.

Circular automatisms, as they might be called, include *rather simple, abnormally perpetual responses that seem to reintegrate themselves*. Examples are yawning perhaps 10 times a minute for hours without

⁴⁵ Cf. Morton Prince, *Clinical and Experimental Studies in Personality*, 1929, 66-91, or 1939, 117-143 (Sci-Art); Hollingworth, *Abnormal Psychology*, 1930, 339-363 (Ronald); PA 2 162; 4-5, 101-112, 243-248, 274, 379-383, 481-494, 509-510, above; a case communicated by Erickson; Charles K. Mills, *Polyclinic*, 1887, 4:296; Karl A. Menninger, *The Human Mind*, 1937, 350-351 (Knopf).

⁴⁶ Cf. Hollingworth, *op. cit.*, 227-228.

being able to stop; also hiccoughing, or retching, likewise without organic cause. These would seem to differ from the association neuroses, or to be a special group of them, only in that the items associated in a circular automatism are the response and the excitation that comes from that response—through undue association, the stimuli from one yawn touch off another yawn. As Prince said, "When the various neural processes have been well amalgamated, no matter what the original excitant, they seem to be carried on in the lower centers as an automatic mechanism in the form of a neurosis."⁴⁷

Of course like effects might come from conditioning to some other internal or external excitation.

Transference neurosis is a term employed by psychoanalysts for a patient's abnormal reaction to the analyst as to someone in the patient's past; for example, reacting as though the analyst were the patient's father when the patient was ten years old. The term seems useful also for the same effect outside the clinic—*abnormal reaction to a person as to some previous person*.

A story by O'Higgins told how a girl won the man of her choice. She saw a photograph of him as a baby playing delightedly with a cameo that hung from his mother's neck. The girl obtained a cameo and wore it similarly; and (according to the story) the charm worked.

Why did George Sand (Aurore Dudevant) fall in love with Alfred de Musset, a man both idealistic and cynical, romantic and cruel? Howe noticed that George's mother had petted and punished her much as Alfred adored and repulsed her. "In submitting to his caprices, George sank back into emotional habits in which she felt at home. Cruelty combined with kindness spoke to her the first language of love she had ever learned."

Early familial attitudes, like a boy's jealousy of his sister, or a girl's contempt for her brother, can crop up disruptively in marriage and in other relationships.

A cadet reacted unreasonably to his officer until he came to see that he was mistaking the officer, subconsciously, for his own father whose attitudes he resented.⁴⁸

⁴⁷ Cf. Prince, *Clinical and Experimental Studies in Personality*, 86 or 138.

⁴⁸ Cf. 27-28, 493-494, above; Harvey O'Higgins, *Woman's Home Companion*, 1929, 56:22ff.; Marie Jenny Howe, *The Intimate Journal of George Sand*, 1929, 6 (Day); Dorothy W. Baruch, *Glass House of Prejudice*, 1946, 155 (Morrow); Harry N. Kerns, *Ment. Hyg.*, 1925, 9:274.

Traumatic neuroses result particularly from *physical or mental shock* (Greek *trauma*). The essential mechanism would seem to be association often combined with some dissociation.⁴⁹

War neuroses were called "shell shock" in World War I until it became clear that many cases develop quite apart from explosions. Under this heading come the neuroses of all the foregoing and subsequent types that develop under military stress. Often they are called "combat fatigue."⁵⁰

Occupational neuroses usually take the form of cramps. Writers', telegraphers', typists', pianists', violinists', milkers', and at least two dozen other such cramps have been reported. Culpin observed that, in some cases, the cramp blocks the whole performance; in others, only a part of it, such as telegraphing the letter C. A number of cramp subjects could telegraph perfectly on a dummy key, but the cramp reappeared as soon as they learned that the key was connected and someone was receiving the message. The parallel to some cases of stuttering is obvious. One telegrapher developed a cramp on a keyboard machine. When he was transferred to a single-key machine, the cramp appeared there; when shifted to counter work, he developed writer's cramp; and when assigned to closing envelopes, he developed a cramp that kept him from doing that. Of a group of 41 cramp cases, about 76% had other symptoms diagnostic of psychoneuroses; but 22% revealed only a subjective experience of cramp, and two-thirds of these did well on relevant vocational tests. Of 46 noncramp subjects, only about 33% showed psychoneuroses. Thus it seems that occupational neuroses and other psychoneuroses tend to occur together but can occur separately.

Occupational neuroses also include, for miners, visual complaints, dizziness, fainting, heart symptoms, and general nervousness; for sailors, seasickness; and so on.

Culpin remarked that many occupational neuroses remain unrecognized; for example, hand tremors in science workers at points where there is danger of being burned.⁵¹

⁴⁹ Cf. Tom A. Williams, in Taylor, *Readings*, 725-730; Prince, in *The American System of Practical Medicine*, 1898 (Lea); S. A. Kinnier Wilson, *J. Neurol. and Psychopath.*, 1923, 4:133-147; Landis and Bolles, op. cit., 112-119.

⁵⁰ Cf. Dunn, *Psychol. Bull.*, 1941, 38:497-504; Landis and Bolles, op. cit., 117-124.

⁵¹ Cf. Culpin, op. cit., 175-200; Taylor, *Readings*, 731-742.

Apparently, some occupational neuroses are essentially association neuroses. Others are more complicated.

Hypochondria is morbid preoccupation with what is, as the etymology implies, "under the cartilage of the breastbone" and, by extension, with the rest of the body. The patient believes mistakenly that he is organically ill, or more ill than he is. In Norman Cameron's phrase, hypochondria is *body overconcern*.

Feuchtersleben said that the hypochondriac "is the type of those wretched creatures who are ever calling upon a physician, who read deeply and morbidly in medical lore, who seek for infirmities in their bodies and who, as has been well pointed out, are as likely to die of a printer's error in a medical book as of anything else." Mandeville noticed that persons with "the Hypochondriack Passion" never think that others are as ill as themselves, and "are always wonderfully offended, if their own Distemper be any ways slighted."⁵²

Neurasthenia we take in the classical sense suggested by the etymology, "nerves without strength." The characteristic symptoms are fatigue; sleepiness during the day; restlessness at night; difficulty in taking up work and in laying it down; hypersensitivity to lights, noises, momentary giddiness, internal sensations, confusion, and other little things that normal persons disregard; irritability; depression; poor attention to most topics other than the patient's own complaints; and likely some of the bodily troubles characteristic of anxiety neurosis. Thus the neurasthenic is *like a tired person*; and his symptom-picture is, as Myerson remarked, essentially that of de-energization. This disorder is especially hard to differentiate from various organic conditions, such as undulant fever, that may yield similar symptoms.⁵³

Psychasthenia, another classical type, means "mind without strength," but not feeble-mindedness, not low intelligence. It means some lack of integration, some inefficiency, in whatever intelligence the person has. The symptoms are less bodily than in hypochondria, and less ostensibly neurological and physical than in neurasthenia. In psychasthenia, the

⁵² Cf. Cameron, *The Psychology of Behavior Disorders*, 187-202; Ernst von Feuchtersleben, *The Principles of Medical Psychology* (Lloyd, tr.), 1847, 135 (Sydenham Society); B. de Mandeville, *A Treatise of the Hypochondriack and Hysterick Passions* vulgarly called the hypo in men and vapours in women, 1711, 264 (London).

⁵³ Cf. Abraham Myerson, *The Nervous Housewife*, 1920, 26 (Little); Cameron, op. cit., 224-231, 243-245; 211, Note 21, above; PA 21 3041.

symptoms seem most "purely mental." They include *obsessive or compulsive reactions* like abnormal fears, disgusts, sexual fixations, tics, stereotypies, and obsessive or compulsive acts and thoughts; *indecision*, ranging from morbid doubt on particular questions to general abulia; *feelings of unreality* or incompleteness about the world or the self (depersonalization) or both; and *difficulty in concentrating*.⁵⁴

Anxiety neurosis is often synonymous with another term, anxiety state. Some authors, however, apply the latter term to psychotic anxieties. Many apply it to psychoneurotic "free-floating" anxieties, those that have no particular conscious object. Some reserve anxiety neurosis for the more focused abnormal fears and anxieties, the ones with conscious objects. (These objects often disguise subconscious objects.) Since the more focused kinds seem classifiable under other headings like association neuroses, traumatic neuroses, hypochondria, neurasthenia, and psychasthenia, we shall call only the *free-floating* variety anxiety neurosis.

Common symptoms are the native and readily associated *signs of fear*; restlessness, tenseness, irritability, shyness, inferiority feelings, jumpiness, sleepiness (especially in the morning), poor sleep, nightmares, fatigue, depression, difficulty in concentrating, forgetfulness, awkwardness, trembling, stuttering (often not the confirmed and imitative types), blushing, pallor, sweaty palms, general sweating, chilliness, dry mouth, checked breathing, eye discomforts, buzzings in ears, pressures and pains in head, neck, and elsewhere, disturbances of alimentation, elimination, menstruation, parturition, lactation, and sexual reactions, "colds" that are only serous, cardiac complaints, dizziness, in some cases illusions and hallucinations, and, in extreme cases, stuporous states.⁵⁵

Hysteria, so named by the Greeks for its supposed connection with the "hystera," uterus, is fairly remote from hysteria and hysterics in the popular senses of these terms. Hysteria as a type of psychoneurosis shows one or more persistent or recurrent *special dissociations*, marked breaks from the patient's control. The special dissociations appear in the affective field as unreasonable disgust, loss of appetite, loss of sex

⁵⁴ Cf. V. E. Fisher, *An Introduction to Abnormal Psychology*, 1937, 195-230 (Macmillan); Cameron, op. cit., 256-260, 278-313; A. Pitres, *Année psychol.*, 1903, 10:284-295.

⁵⁵ Cf. PA 20 1542; Hamilton, op. cit., cases 88-91, 94; Fisher, op. cit., 176ff.; Ross, op. cit., 31-61.

urge, sudden fear, anger, depression, ecstasy, and so on; in the vegetative functions, as various disorders now often called psychosomatic (a type we shall notice shortly); in sensation and perception as blindness, deafness, and other anesthetics, also imperceptions and illusions; in action, as paralyzes, contractures, tremors, tics, and other automatisms; in thought, as amnesias for those dissociated functions, also perhaps for whole systems of interests and memories, and as some hallucinations, including pains, and even delusions; and in general consciousness, as spells, trances, hysterical fits, stupors, dramatic revivals of experienced or imagined roles, and, in extreme cases, disparate personalities.

Hysteria shows also considerable *emotional instability* and much *suggestibility*, especially along lines congenial to the patient.

Some cases of hysteria develop general syndromes like, for example, dementia praecox, that remain fairly constant, then disappear more or less gradually.

Usually, the hysterical patient seems more relieved than regretful over what he has lost through special dissociation; and often he maltreats the dissociated part as something despicable. At the same time, he is not likely to let it suffer enough to threaten the rest of him. Thus, unlike the organic patient, the hysterical one protects himself from serious burns or other injuries on his anesthetic area, from dangerous falls that might result from his blindness or his paralysis, and from forgetting what he should do when he really needs to do it. Even in great attacks that simulate epilepsy, the patient does not get injured as the epileptic does.⁵⁶

Conversion hysteria is a contemporary term derived from Breuer and Freud's idea that "dammed-up emotional energy" often becomes "converted" into neurotic symptoms. The term is applied to psychogenic blindness, paralysis, contracture, and like *bodily disorders in the*

⁵⁶ Cf. the chapters on Dissociation, Acquired Patterns, Thought, Action and Control, and Suggestion; 546-552, above; Walter Scott, *Letters on Demonology and Witchcraft*, 1831 (London) or 1885 (Routledge); Maurice Garcon and Jean Vichon, *The Devil: An Historical, Critical, and Medical Study*, 1930 (Dutton); James Brewster, *Trans. Roy. Soc. Edin.*, 1816, 8:249-257; Gilles de la Tourette, *Traité clinique et thérapeutique de l'hystérie*, 1891 (Paris); PA 9 4225; Fisher, *op. cit.*, 231-258; Ross, *op. cit.*, 171-192; Cameron, *op. cit.*, 318-338, 349-368, 383-387; E. Kretschmer, *Hysteria*, 1926, 111-112 (Nerv. Ment. Dis. Pubg. Co.); O'Kelly, *op. cit.*, 173; Emily Brontë, *Wuthering Heights*, chaps. 11 and 12; Thomas Hardy, *Tess of the D'Urbervilles*, the character Angel Claire; Samuel B. Broder, *Am. J. Psychiat.*, 1937, 93:963; Myerson, *Am. J. Psychiat.*, 1938, 94:961-983; PA 16 999.

voluntary areas rather than the autonomic. It seems better to classify these disorders under the foregoing headings according to the case.⁵⁷

Psychosomatic disorders is a recent name for at least partly *psychogenic physical disturbances*, especially in the *autonomic areas*. Examples are many alimentative, circulatory, respiratory, genital, lactational, endocrinological, skin, joint, and other affections, including psychogenic allergies and pains.⁵⁸ All of these seem classifiable under the other headings just mentioned; yet the name is convenient for such essentially autonomic symptoms.

Reactive depression looks rather like a psychosis, in that the patient is more or less deeply and persistently depressed. Many students, however, classify this disorder as a psychoneurosis because it derives from real disappointment, likely combined with conflict and feelings of guilt; the patient continues to recognize many facts about the world and himself; and, given improved conditions and adequate psychotherapy, he recovers.⁵⁹ Perhaps the suicidal cases and those that require shock treatment belong under manic-depressive psychosis or involution melancholia.

Incidence of the types. Until psychoneurotic phenomena are more consistently named and reported, we can know little about the incidence of the various types. For the more developed types, however, the literature contains suggestions that what we have called hypochondria, neurasthenia, psychasthenia, and anxiety neurosis are more common than hysteria among college students, military officers, and other persons with professional and executive responsibilities; and that hysteria occurs especially among private soldiers and other people in the humbler walks of life. Several authors have suggested that the basic difference between these two great groups, on the average, is intelligence.

Lowrey and Cameron, respectively, said that more women than

⁵⁷ Cf. 23, above; and various current publications.

⁵⁸ Cf. Cameron, *op. cit.*, 192-202; H. Flanders Dunbar, *Emotions and Bodily Changes*, 1947 (Columbia Univ. Press); Dunbar, *Psychosomatic Diagnosis*, 1943 (Hoeber); Franz Alexander, Thomas Morton French, and others, *Studies in Psychosomatic Medicine*, 1948 (Ronald); Grinker and Spiegel, *Men under Stress*, 1943, 13 (Doubleday); PA 21 3077; C. Alberto Seguin, *Introduction to Psychosomatic Medicine*, 1950 (International Univ. Press).

⁵⁹ Cf. Louis J. Karnosh and Edward M. Zucker, *A Handbook of Psychiatry*, 1945, 221 (Mosby); Lowell S. Selling, *Synopsis of Neuropsychiatry*, 1947, 419-420 (Mosby); PA 22 1290 (suggestive); O'Kelly, *op. cit.*, 161-169.

men have hysteria; but Lowrey admitted that many common neuroses from war and other stresses in men are essentially hysterical.⁶⁰

Causes of the types. Every reaction and every pattern, we assume, reflects the heredity and environment of the individual. Every psychoneurosis follows the individual's mental and physical weaknesses and strengths and his experiences. Not to be overlooked among the experiences are cultural influences, personal wishes, daydreams, present pre-occupations, and stresses of all the kinds mentioned in the preceding chapter, including threats and conflicts. Many a symptom is a rather simple reaction to stress, a meeting point or symbol of a conflict, a penance, a bid for sympathy and help, or a combination of these factors.

Association, transference, and traumatic neuroses reflect all the foregoing factors more obviously than do some of the more complicated types.

Occupational neuroses seem to develop most readily in persons with some psychoneurotic predisposition who dislike but cannot get away from their work; for example, one who fears his fellow workers, his supervisor, or failure, whether for good reason or not, yet cannot afford to relinquish this job.

Hypochondria and *neurasthenia*, again most likely in the predisposed, offer some excuse and diversion (abnormal preoccupation) from any fear, demand, even a self-demand, or other stress that seems excessive.

Psychasthenia, likewise, variously obscures personal difficulties, perhaps less-serious difficulties than those in neurasthenia and hypochondria, and with some more clean-cut dissociation.

Anxiety neurosis appears as an emergency-reaction and perhaps diversion from the too greatly feared, often from a feared tendency in oneself. An anxious temperament and any habitual and current anxieties are predisposing causes.

Freud ascribed anxiety neurosis to inadequate sexual outlet; yet many persons without such outlet do not develop this neurosis, and many whose sexual life seems normal develop the neurosis from, apparently, other causes. Among the soldiers in World War I, according to reports, the most common psychoneuroses during mobilization were

⁶⁰ Cf. Mandeville, *op. cit.*; Hollingworth, *op. cit.*, 365-366; Emanuel Miller, *op. cit.*, 15; J. W. Bridges, *J. Abn. Psychol.*, 1927, 22:227-234; Lowrey, *op. cit.*, 229; Cameron, *op. cit.*, 320.

hypochondria, neurasthenia, and psychasthenia, but under battle conditions, anxiety neurosis and hysteria.

Hysteria is a more or less subconscious way of escape from the difficulties associated with a hand or other part by cutting it off, functionally, through dissociation. Some persons seem more readily dissociable than others.

Reactive depression derives variously from native tendency, some real setback, conflict, and guilt feelings, often over personal relationships.

These interpretations are not proved; but they seem to fit in with what we know of psychoneuroses in man and in experimental animals.⁶¹

Systematic view of types. For the whole group of psychoneuroses, perhaps the most significant headings are association neuroses, neurasthenia, psychasthenia, anxiety neurosis, and hysteria; perhaps the other types are forms or combinations of these.

Hadfield, after Freud, saw different degrees of conflict and repression in different psychoneuroses.

Jackson, we recall, observed that disintegration tends to start with the highest levels and work down to the lower levels.

Prince noticed that some psychoneuroses appear as sheer learned patterns which inhibit other patterns but without dissociation. Some psychoneuroses, however, involve inhibition or dissociation or both of meanings; others, of meanings and more basic ideas; and yet others, meanings and ideas and what he called conscious emotion, leaving evident only physical effects. Apparently no psychoneuroses involve inhibition or dissociation of physical effects, or of physical effects plus emotion, without their attendant ideas and meanings; dissociation always involves meanings at least.

Each of the foregoing suggestions is illuminating; but the most likely sequence of disintegration seems to be meanings, ideas, and physical effects (sensations and acts).

For example: A certain man has a mild association neurosis; he shudders every time he sees a red car. He does so because once he experienced a frightful accident from such a car. He remembers the meanings of the accident and the accident itself, and he can recall the

⁶¹ Cf. Janet's and Prince's works, *passim*; Grinker and Spiegel, *op. cit.*, 13; White, *op. cit.*, 308-309; Culpin, *loc. cit.*; Cameron, *op. cit.*, *passim*; Harrington, *op. cit.*, 224-225; Grinker and Spiegel, 14-15, 17, 54, 12-13; Dunn, *loc. cit.*, 500; PA 21 3058, 3059; PA 13 3665, 21 3053.

everyday meanings of red, car, and the rest. Thus, he has no dissociation.

Another man is neurasthenic; he is extremely tired without present organic cause. He knows that he was tired like this after a hard fight in which he saw his four friends ambushed and killed. He does not recall, however, that when he saw them die he thought: "I discovered that ambush and could have warned them; but I hid myself instead. I do not have the stamina to be a man." Moreover, he does not realize that this same impression has been in the back of his mind ever since that day. He has dissociation for this meaning of his friends' death.

A third subject is psychasthenic. He fears cats. He remembers that his fear began when he was small and saw a kitten have a fit; but he does not realize that to him then the fit meant death, and that, subconsciously ever since, cats have meant death. He also fails to recall an earlier experience which made him anxious about death and led him to apply the kitten's case to himself. Thus he has amnesia for a particular meaning and an idea, an experience behind it.

A psychasthenic subject reported by Rivers fears enclosed spaces; he has "claustrophobia." From what he has learned of psychoanalysis, he believes that his fear is of sex; and he tries, unsuccessfully, to recover some childhood sex impression that gave him the fear. Finally, through dream analysis and further reminiscence, he recalls that when he was about four years old he ventured into a narrow passage in a strange house, then was terrified to find himself caught between a closed door and a growling dog. Upon reinterpreting this incident, he is cured. His dissociation covered the meaning of the incident, also the central idea, the incident itself.

Another psychasthenic, a woman, has a compulsion to sterilize all dishes and foods, and to wash her hands several times before and during each meal. She thinks she has an abnormal love of cleanliness. She has; but she fails to recall her childhood theory that pregnancy comes from germs in the food, and to recognize her repressed desire for mating and a child.

A returned soldier has an anxiety neurosis. Analysis shows that it began through sheer association of anxiety with several narrow escapes from injury or death, and that the anxiety spread until it was linked with everything military. Moreover, on several occasions this man felt guilty for saving himself instead of his comrades; and, subconsciously, he has been afraid lest his cowardice be revealed to others and himself.

Another returned soldier has hysteria. Like the foregoing case, he

developed a severe anxiety neurosis; but he kept on fighting until, after a most distressing incident, he developed a paralyzed right arm and lost his memory for much of the war. Thereupon his anxious expression relaxed. He was transferred to a hospital for war neurotics, and proved to be one of the best-natured patients there. His dissociation includes many meanings and ideas, memories, of his military life, and his arm. Correspondingly, the meanings and ideas that are not dissociated, that are aroused by everyday things, bring with them pleasant emotions instead of anxiety.

Thus it seems that *association neuroses represent perhaps conflict but no dissociation; neurasthenia, psychasthenia, and anxiety neurosis represent conflict together with some dissociation of meanings and often of basic ideas; and hysteria represents dissociation that largely gets away from conflict and includes meanings, ideas, and bodily functions.*⁶²

Prevention and prognosis. Prevention of psychoneuroses seems to turn on all the cautions mentioned for other disorders, with especial emphasis upon sound education about all possible points of stress and ways toward a good life.

Many psychoneuroses disappear, gradually or suddenly, without formal treatment. Many others, however, continue, and some get worse as time goes on, unless they are treated.

Reports of success in treating the psychoneuroses vary, apparently according to selection of patients, therapists, methods, and other conditions. Many therapists feel that much depends upon the patient's age and intelligence and the disorder's type, duration and severity, also upon the patient's familial and vocational situation. As a rule, children, adolescents, and young adults are considered more curable than older patients, and the more intelligent, than the less intelligent. Tom A. Williams, however, was successful with many older patients, including some who were not very intelligent, through psychotherapy that was grounded on psychological principles without cultish presuppositions.

Some simple cases yield beautifully.

Many traumatic and war cases continue psychoneurotic, especially when pensioned for their disability. Much depends, however, upon the approach to the individual patient.

⁶² Cf. J. A. Hadfield, *Psychology and Morals*, 1923, 27-29, 32-33, 124-125 (in Taylor, *Readings*, 664-667); 43, above; Prince, *The Unconscious*, 372-374, 523-528 (*Readings*, 667-670); W. H. R. Rivers, *Instinct and the Unconscious*, 1922, 170-181 (Cambridge Univ. Press) (*Readings*, 583-590). Cf. also D. R. Miller, *Am. Psychologist*, 1949, 4:274.

Several investigators found what we have called hypochondriac, neurasthenic, and psychasthenic patients much less amenable to treatment than those with anxiety or depression. Hysterical patients yield especially well, given wise therapy and real adjustment of their problems.

Various psychotherapeutic clinics report that from 47.4% to 88.8% of their civilian psychoneurotic patients are apparently cured or much improved. Even treatments by general practitioners have been very helpful to 60 or 70% of such patients.⁶³

Psychopathic Personality

Many chronic egoists, persons given to unreasonable emotional outbursts, publicity seekers, sex adventurers, liars, malingerers, gamblers, thieves, swindlers, destroyers of property, gangsters, vagrants, alcoholics, drug addicts, and other troublesome or criminal persons are said to have a psychopathic personality, or to be psychopaths. More or less synonymous terms for psychopathic personality are moral insanity, moral imbecility, constitutional psychopathic state, constitutional inferiority, and sociopathic personality.

Some students take psychopathic personality to be a special category; others, antisocial forms of various psychoses and psychoneuroses; and yet others, a wastebasket for cases that do not fit well into other categories. We take the term to cover a supposedly special category.

Incidence. A little less than 1% of all the admissions to mental hospitals in the United States in 1947 were diagnosed psychopathic personality. Of these, about 60% were men. The median age for men in state institutions was about 30, and in private institutions, 32. The corresponding ages for women were 28 and 33. No doubt many other cases were either at large, or protected by their families, or in prisons. Lindner estimated that 15% of all prisoners are psychopaths.⁶⁴

⁶³ Cf. Grinker and Spiegel, *op. cit.*, 17; Myerson, *op. cit.*, 70-73; Tom A. Williams, in Taylor, *Readings*, 727-742, and Edinburgh Med. J., 1927, N.S. 44:621-632; Daniel Hack Tuke, *Illustrations*, 1873, 186-187; Charles S. Myers, *Shell Shock in France: 1914-1918*, 1940, 42-75 (Cambridge Univ. Press); Ross, *op. cit.*, *passim*; Dunn, *Psychol. Bull.*, 1941, 38:501-502; PA 20 1512, 22 4060; Miller, *op. cit.*, 15, 30-32; Hamilton and Wall, *Am. J. Psychiat.*, 1942, 98:553; Lowrey, *op. cit.*, 233; Ross, 211, etc.; Coon and Raymond, *op. cit.*, 122-124; Knight, *Am. J. Psychiat.*, 1942, 98:440-445; Hamilton and Wall, *ibid.*, 555; Landis and Bolles, *op. cit.*, 106, 113, 122-123; William Brown, *Science and Personality*, 1920, 136 (Yale Univ. Press); Desmond Curran, *Lancet*, 1937, 233:1005ff.; PA 18 3134.

⁶⁴ Robert M. Lindner, *Rebel Without a Cause: The Hypnoanalysis of a Criminal Psychopath*, 1944 (Grune).

Causes. Heredity, encephalopathies (organic), lack of love from parents, lack of proper clothes and toys and playmates in some cases, physical and other defects, bad experiences and influences, poor training, incestuous and parricidal wishes, and guilt feelings making for crime to bring punishment have been considered as causes of psychopathic personality.⁶⁵ Perhaps each of these causes applies to some cases.

Symptoms. Characteristically, the psychopath is without clear psychotic or neurotic symptoms. Often he is composed, charming, and even impressive or appealing. His intelligence may be low, average, or high; and sometimes he is gifted or able in mechanics, music, or some other line.

He is, however, selfishly impulsive and glib. From early childhood he has been uncooperative and emotionally unstable. As a man, his sexuality is active but somehow immature if not really perverted; it is never deep, altruistic, or sharing. All his satisfactions, bodily, venturesome, esthetic, social, seem shallow. He is a person of many impulses, but he lacks good ones. He daydreams or gets a notion that he wants this or that, and he sets out to get it immediately. Perhaps he has a childish picture of himself as a clever person who can always get what he wants. He often steals regardless of need; but he steals impulsively, not compulsively. Usually he is a great troublemaker, a delinquent, and a petty rather than a major criminal. An occasional psychopath, however, as Overholser and Richmond observed, "can commit fiendish crimes without a qualm and die defiantly or with curses on his lips." The psychopath is a blacksheep, unsatisfactory as child, mate, parent, friend, worker, and citizen.

When he is brought to account, he readily lies, justifies himself, or becomes sullen and defiant. Imprisonment may precipitate a "prison psychosis," a real psychosis that clears up soon after he is released.

Punishment fails to impress him. He often shows much more concern, affection, and penitence than he has; indeed, he acknowledges his faults, and he promises to reform; but his promises come to nothing.

Strecker, Ebaugh, and Ewalt reported that one man was arrested and served a short sentence again and again for stealing mail or federal property. Altogether, he had been in prison for 18 out of 21 years. When he was released, he reported to the parole officer, stole that officer's typewriter on his way out, and was arrested again.

⁶⁵ Cobb, *Borderlands of Psychiatry*, xiii; Landis and Boiles, *op. cit.*, 292-294; Lindner, *op. cit.*

One psychopathic repeater wrote: "We try to learn from the mistakes we made . . . ; there are a good many fellows we know who don't get caught."

Of another repeater, Cleckley observed: "People who talked with him after disasters overtook him, or when he was seeking leniency from the courts, were invariably impressed with him. Several of these advisers, including judges, physicians and clergymen, not only felt that he was a man of remarkable ability who had at last found himself and who would now conduct himself admirably, but even confessed that he was able to give them new points of view and make them hope to improve their own lives. After every incident of this sort he immediately returned to the familiar pattern."⁶⁶

Prevention and prognosis. Assuming that there are different types of psychopathic personality according to cause, some cases should be preventable and some curable by the various means that have been suggested for other disorders. Typically, however, the psychopath neither seeks nor accepts treatment. Lindner reported some encouraging results with hypnoanalysis; Selling recommended familial, social, and vocational adjustment, and play; and Karnosh and Zucker urged development of any special ability. On the other hand, Karnosh and Zucker thought that the psychopath could not be adjusted to a routine life; and Cleckley concluded that the law should admit psychopaths to mental hospitals for intensive study and experimental treatment, including shock treatment.⁶⁷

Psychological Aids to Diagnosis and Prognosis

The burgeoning literature of clinical psychology offers various aids to diagnosis and prognosis. Here we can only glance at some outstanding aids.

Symptom scores. Starting from the usual observations of patients' symptoms, psychiatrists and psychologists have sought to quantify, group, and weight symptoms, answers to questions, and the like, for

⁶⁶ Cf. Overholser and Richmond, *op. cit.*, 184-196 (quotations adapted from 193, 186-187); Hervey Cleckley, in Pennington and Berg, *op. cit.*, 249-264 (quotation, 260); Strecker, Ebaugh, and Ewalt, *op. cit.*, 306; Hulsey Cason, *Am. Psychologist*, 1947, 2:399; Bluemel, *op. cit.*; PA 26 2849.

⁶⁷ Cf. Landis and Bolles, *op. cit.*, 291-295; Lindner, *op. cit.*; Selling, *op. cit.*, 489-490; Karnosh and Zucker, *op. cit.*; Cleckley, *The Mask of Sanity*, 1941 (Mosby).

diagnosis and prognosis. The results, including notably the Minnesota Multiphasic Personality Inventory, have been helpful relative to some nine mental disorders.⁶⁸

Reaction times. F. L. Wells and C. M. Kelley observed that reaction times are rather slow in manic-depressive manics and depressives alike. Lundholm, through measuring series of reaction times, in several cases was able to predict the onset of manic attacks before the patients' behavior changed noticeably.⁶⁹

Word association tests. Jung turned up many complexes through observing his patients' associations, delays, and other reactions to stimulus words. To this technique Luria (1932) added measurements of muscular pressures. Shuey (1937) traced the patterns of the pressures, and found the patterns small in catatonics and manic-depressives, and large in paranoids. Kent and Rosanoff tabulated patients' associations to the stimulus words, and observed that dementia praecox patients gave more "individual" or unusual associations than did any other group studied; also that badly demented epileptics gave many repetitions and many particles of speech. Klepper reported that he could differentiate between epileptics and catatonics through the association test alone. Kilian noticed changes in a manic patient's associations as the patient returned to normal. Nathan traced an imbecile's "senseless" reactions to incidental sense impressions, to personal ideas, and to previous stimulus words. Such studies have been carried further by Rapaport, by Wolff, and others, with good results.⁷⁰

Intelligence tests. Soon after intelligence tests came into use, psychologists began to note not only each subject's total scores but also his particular successes and failures, their distribution throughout the

⁶⁸ Cf., e.g., Edward J. Kempf, *Am. J. Psychiat.*, 1915, 71:761-772; Thomas Verner Moore, *Stud. Psychol. Psychiat.*, 1933, 3:No. 3; PA 15 3877, 20 3684, 21 4454, 22 35, 22 1315, 22 5519, 23 255, 23 1833.

⁶⁹ Wells and Kelley, *Am. J. Psychiat.*, 1922, 2:53-59; Helge Lundholm, *J. Abn. Psychol.*, 1922, 17:313-314.

⁷⁰ Robert S. Woodworth, *Experimental Psychology*, 1938, 364-367 (Holt); Shepherd Ivory Franz, *Psychol. Bull.*, 1912, 9:145-150 (Taylor, *Readings*, 98-100); Woodworth, 351-354; David Rapaport, *Diagnostic Psychological Testing: The Theory, Statistical Evaluation, and Diagnostic Application of a Battery of Tests*, 1945, 1946, 2:75-84 (Year Bk.); Werner Wolff, *The Threshold of the Abnormal*, 1950, 349 (Hermitage).

examination, the subject's attitude, and his general and incidental reactions, as clues to his mental condition and basic organization. Systematic studies of these various clues have yielded definite aids to diagnosis and prognosis.⁷¹

Perception tests, comprehension tests, tests of abstraction, performance tests, and aspiration tests are significant likewise.⁷²

Expression analysis, a study of facial, bodily, gestural, writing, and speech movements, is a promising field.⁷³

"Voice signs" and language use—volume, tonal quality, pitch range, speed, distractibility, choice of words, ideas, etc.—reflect both organic and functional disabilities and are often highly indicative.⁷⁴

Projective techniques are a rich development. The Rorschach, Thematic Apperception, Szondi, World, and other tests have proved useful and are being made more so.⁷⁵

Observations of play, drama, and other arts amount to less formal and often more rich projective techniques.⁷⁶

Batteries of tests are most useful, partly because they offset the frequent tendency of a patient to "pull up" on a single test, to do better than his possible average.⁷⁷

⁷¹ White, op. cit., 586-587; Wolff, op. cit., 350-351; Rapaport, op. cit., 1:passim; George S. Klein, *Am. Psychologist*, 1946, 1:263.

⁷² PA 15 4267, 15 4268, 15 2257, 20 445; Wolff, op. cit., 350, 354; Rapaport, op. cit., 1:450-461, 473; the Minnesota Multiphasic Personality Inventory (Psych. Corp.); Saul Rosenzweig with Kate L. Kogan, *Psychodiagnosis: An Introduction to Tests in the Clinical Practice of Psychodynamics*, 1949, 34-74 (Grune); papers on senility by Birren, Botwinick, and others, 1950, 1951; D. R. Miller, *Am. Psychologist*, 1947, 2:406, 1949, 4:274; Nolan D. C. Lewis and Zygmunt Piotrowski, in Hoch and Zubin (eds.), op. cit.

⁷³ Wolff, op. cit., 356-363.

⁷⁴ PA 4 3537, 17 1243, 26 2849.

⁷⁵ Wolff, op. cit., 352-366; Pennington and Berg, op. cit., 416-439; Rapaport, op. cit., 2:passim; Rosenzweig, op. cit., 167-182; various authors, *Am. Psychologist*, 1946, 1:285-287; Lawrence Edwin Abt and Leopold Bellak (eds.), *Projective Psychology*, 1950 (Knopf); Helge Lundholm, *Am. J. Psychiat.*, 1924, 3:739-756; PA 24 5262, etc.; Gerald S. Blum and Howard F. Hunt, *Psychol. Bull.*, 1952, 49:238-250; PA 26 4803.

⁷⁶ Wolff, op. cit., 364-366; Pennington and Berg, op. cit., 427-439.

⁷⁷ White, op. cit., 586-587; Rapaport, op. cit., 2:460-471; Burton and Harris, op. cit., passim; PA 3 4847.

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Introduction to Terms of Abnormal Psychology

Many important terms can be mastered quickly by comparing them, in spelling, etymological meanings, and definitions, with related or contrasted terms.

The terms that follow are grouped for such comparison. Parenthesized are additional letters of alternative forms, alternative forms themselves, also etymological meanings and, in some cases, familiar derivatives of the same roots.

Where terms are grouped without their definitions, the definitions follow the group.

Many further terms appear in the Index and Glossary of this book; the unabridged *Webster's New International Dictionary of the English Language*; Howard C. Warren, *Dictionary of Psychology*, 1934 (Houghton Mifflin Company, Boston); Calvin P. Stone, *Glossary of Technical Terms for Beginning Students in Abnormal Psychology, Mental Hygiene, and Medical Social Service*, 1944 (Stanford University Press, Stanford University, California); Jules H. Masserman, *Principles of Dynamic Psychiatry*, 1946 (W. B. Saunders Company, Philadelphia); Leland E. Hinsie and Jacob Shatzky, *Psychiatric Dictionary with Encyclopedic Treatment of Modern Terms*, 1940 (Oxford University Press, New York); and Nandor Fodor and Frank Gaynor, *Freud: Dictionary of Psychoanalysis*, 1950 (The Philosophical Library, Inc., New York).

Dynamic psychology (powerful mind-science): The psychology of motivation.

Abnormal psychology (away-from- or without-the-standard mind-science): (1) For this book, the psychology of those mental states and of those minds which are relatively far from ideal integration. (2) For some

authors, psychopathology. (3) For some, any marked deviation from the average mental life.

Clinical psychology (inclining or bed mind-science): The technical application of psychology to individual adjustments.

Psychiatry (mind-healing): The branch of medicine that deals with mental disorders. Thus a psychiatrist is always a physician.

Psychopathology (mind-suffering-science: cp. sympathy = together-suffering): (1) The science of mental disorders. (2) Psychopathy (q.v.).

Psychopathy: Disordered mental life.

Psychoanalysis (mind-up-loose-condition): (1) The doctrines of Freud. (2) The doctrines of Freud, Jung, Adler, and cognate schools. (3) Freud's therapeutic techniques. (4) The various psychoanalysts' therapeutic techniques.

Hydrotherapy (water treatment): Treatment with water.

Psychotherapy (mind treatment): Treatment by mental means; not every treatment of the mind.

Mental hygiene: The conservation and development of mental health.

Structural disorder: Organic disorder (q.v.).

Organic disorder: Based on neural-tissue damage.

Functional disorder: (1) Without basis in neural-tissue damage; psychogenic. (2) Without known basis in neural-tissue damage.

Neurosis (nerve-condition): (1) Any neural disorder, local especially. (2) Psychoneurosis (q.v.).

Psychoneurosis: A psychogenic disorder with personality little affected and insight good, generally speaking.

Psychosis (mind-condition): A disorder, whether psychogenic, somatogenic, or both, with personality affected and insight poor, generally speaking.

Psychogenic (mind-produced): Produced by mental processes.

Somatogenic (body-produced): Produced by organic processes.

Endogenic (*endogenous*) (within-produced): Produced from within the person.

Exogenic (*exogenous*) (without-produced): Produced from without the person.

Pathogenous (*pathogenic*) (disease-producing): Productive of disease.

Abnormally, subnormally, or pathologically

lacking-	under- or deficient-	over- or excessive-	beside- or off-	disordered-	echo-like-	half-
<i>a- or an-</i>	<i>hypo-</i>	<i>hyper-</i>	<i>para-</i>	<i>dys-</i>	<i>echo-</i>	<i>hemi-</i>
afunition	hypofunction	hyperfunction	parafunition	dysfunction		
aphonia	hypophonia	hyperphonia	paraphonia	dysphonia		
alalia			paraphasia	dyslalia	echolalia	
aphasia			paraphasia	dysphasia		
alexia			paraphasia	dyslexia		
agraphia			paraphasia	dysgraphia		
apraxia			parapraxia		echopraxia	
ataxia						
akinesia	hypokinesia	hyperkinesia	parakinesia	dyskinesia		
ab (o) ulia			paramnesia			
amnesia	hypomnesia	hypermnesia	paresthesia	dysesthesia	hemianesthesia	
an (a) esthesia	hyp (o) esthesia	hyperesthesia	paralg (es) ia			
analg (es) ia	hypalg (es) ia	hyperalg (es) ia	paralysis		hemianopsia	
anopsia			paraplegia		hemiplegia	
anorexia	hypochondria		paranoia			
			paraphrenia			
	hypophrenia					

The foregoing terms are defined largely by the etymological meanings shown above the respective columns for the prefixes, and at the right of the lines for the main roots. Those and some further terms are defined more particularly on the following pages.

Erogenous (love-producing): Productive of erotic reaction.

Etiology (cause-science): Causation of disorder.

Diagnosis (through-knowing): Recognizing and characterizing a disorder.

Agnosia (lacking-knowing): Abnormal inability to recognize common objects.

Prognosis (fore-knowing): Outlook or forecast.

Sthenic: Strong or strengthening; said of emotions and other mental states.

-sis: Process or condition.

-ia, -is: A noun ending. (At many places in the list on page 626 and elsewhere, either form may be used.)

The -functions: Applied to any process such as sensation, action, memory, language, or thought. *Afunction* means that that function is abnormally, subnormally, or pathologically absent. *Hypofunction*, deficient. *Hyperfunction*, excessive. *Parafunction*, occurring but wrongly. *Dysfunction*, disordered in any way. Thus dysfunction is a more general term than the others in this group.

Mutism: Dumbness, often negativistic or compulsive.

Aphonia: Absence of voice, though the person may whisper. *Hypo-phonia*: Deficiency of voice. *Hyperphonia*: Excess of voice. *Paraphonia*: Voice functioning but wrongly. *Dysphonia*: Any disorder of phonation.

Alalia: Mutism. *Dyslalia*: Disordered or defective speech. *Echolalia*: Involuntarily imitative speech; for example, when someone says to Jones, "Jones is an egregious fool," Jones repeats the statement.

Aphasia: From cerebral or functional disorder, inability to use language. *Sensory aphasia* may be *auditory*, *visual*, or, in the blind, *tactual*. Thus, auditory aphasia is abnormal inability to understand heard language, perhaps language that the subject can think and express. *Motor aphasia* is abnormal inability to speak or to write, as the case may be, perhaps language that the subject understands and thinks. *Paraphasia*: Abnormal misuse of words, grammar, or other elements of language. *Dysphasia*: Any disorder of the use of language.

Alexia: Visual aphasia, aphasic inability to read. *Dyslexia*: Abnormal difficulty in reading.

Agraphia: Aphasic inability to write. *Paragraphia*: Abnormal miswriting. *Dysgraphia*: Any cerebral or functional disorder of writing.

Apraxia: From cerebral or functional disorder, inability to handle common objects and to act according to intention. Such disorder may be *sensory* (*agnostic*) or *motor* or both. *Parapraxia*: Abnormal misaction. *Echopraxia*: Involuntarily imitative action; when one goes up

to Jones and makes one's hands go around each other, Jones's hands go around each other.

Ataxia: Abnormal incoordination, especially of voluntary movements.

Akinesis: Lack of movement; a muscle, limb, or person may be akinetic. *Hypokinesis*: Deficient, slowed or weakened, movement. *Hyperkinesis*: Excessive movement. *Parakinesis*: Abnormal mismovement. *Dyskinesia* (*dyskinesis*): Disorder of movement, especially of voluntary movement. *Allokinesia* (other-motion): Moving the opposite member from the intended one. *Synkinesia* (together-motion): Intending to move one limb, moving both.

Amnesia: Abnormal inability to recall. *Hypomnesia*: Abnormally incomplete recall. *Hypermnnesia*: Abnormally complete recall; for example, a man who registers at a hotel, then a dozen years later recalls the page and line upon which he registered, the blot he made beside his name, and the room number, shows hypermnnesia. *Paramnesia*: Abnormally mistaken recall. *Anamnesis* (up-memory, recalling): The previous history of a case.

Anesthesia: Insensibility, tactual, gustatory, auditory, visual, or other. *Hypesthesia*: Deficient sensibility. *Hyperesthesia*: Excessive sensibility; the princess who could not sleep because there was a pea under the seventh mattress was hyperesthetic. *Paresthesia*: Mistaken sensibility, like feeling bugs on the skin when there are none, or mislocating a touch. *Dysesthesia*: Any disorder of sensibility, especially touch. *Hemianesthesia*: Anesthesia of a half, right or left, of the eye, the body, or whatever is indicated. *Synesthesia*: One form of sensibility accompanied by the effect of another.

Analg(es)ia: Insensibility to pain. *Hyp(o)alg(es)ia*: Reduced sensibility to pain. *Hyperalg(es)ia*: Excessive sensibility to pain. *Paralg(es)ia*: Mistaken sensibility to pain, like feeling pain in a wrong place.

Anopsia: Blindness. *Hemianopsia*: Half, right or left, blindness.

Contracture: A lasting rigidity of one or more muscles.

Paralysis: A lasting atony, loss of function, of one or more muscles.

Paraplegia (not clear from the etymology): Paralysis of the lower half of the body. *Hemiplegia*: Paralysis of a half, right or left, of the body.

Anorexia: Absence of hunger for food.

Hypochondria: Morbid concern about one's body.

Paranoia: A chronic disorder with systematized delusions without marked deterioration.

Hypophrenia (deficient-mindedness): Feeble-mindedness. *Para-*

phrenia: Insanity; especially, paranoia or paranoid dementia praecox. *Schizophrenia* (split-mindedness — a misleading etymology): Dementia praecox. *Hebephrenia* (youth-minded): The "silly" type of dementia praecox. *Presbyophrenia* (aged-mindedness; cp. Presbyterian, related to presbyters, elders): A form of senile psychosis.

Presbyopia (aged-eyedness): Far-sightedness due to age.

Neurasthenia (nerves-without-strength): The type of psychoneurosis in which the reactions are much like those of a tired person. *Psychasthenia* (mind-without-strength): The type of psychoneurosis marked by a combination of obsessive or compulsive reactions, indecision, feelings of unreality, and difficulty in concentrating; not to be confused with feeble-mindedness.

Catatonia (down-tone): A state marked variously by stupor, excitement, negativism, muscular tension, and catalepsy; as in catatonic dementia praecox.

Catalepsy (down-seizure): (1) The limbs remaining as placed by the self or others. (2) Psychogenic bodily rigidity.

Cataplexy (down-struck; cp. plague): Deathlike catalepsy (2).

Epilepsy (upon-seizure): A chronic disease marked by recurrent and more or less convulsive attacks.

Mannerism: A characteristic oddity of speech or behavior, whether in a normal or an abnormal person.

Stereotypy (solid-form): An abnormally automatic, recurrent, or persistent movement, spoken word or phrase, or posture; distinguished from a mannerism by continuing beyond the normal limits of fatigue and control.

Tic: A small stereotypy of movement or voice.

Hypnosis (sleep-condition): A state of enhanced suggestibility induced by suggestion. *Hypnotism* (make-sleep-condition): The phenomena, induction and theory of hypnosis. *Hypnoid(al)* (sleep-like): Mildly or nearly hypnotic. *Hypnagogia* (sleep-leading; cp. pedagogy = boy-leading): The borderland where waking passes into sleeping; often marked by hypnagogic hallucinations. *Hypnopompia* (sleep-dismissing): The borderland where sleeping passes into waking; marked by hypnopompic phenomena.

Prodrome (fore-running; cp. dromedary = a running animal, and hippodrome = horse-running or -course): A precursory symptom. The adjective is prodromal. *Syndrome* (together-running): A characteristic group of symptoms.

Euphoria (well-bearing; cp. euphony = well-voicedness): Intense,

general, pleasant feeling. Sometimes the term is used for normal joy of living.

Illusion (in-playing): False perception, whether believed or not.

Delusion (from-playing): Seriously unintegrated false belief.

Hallucination: Perception-like imagery, whether believed or not.

Trauma (injury): Physical or mental blow or shock.

Insight: Reasonable understanding and evaluation of one's mental processes, reactions, abilities, and capacities; self-knowledge. (See also Index and Glossary.)

Index and Glossary

This Index and Glossary includes most abbreviations used.

Not included are (1) authors cited only through references to the Psychological Abstracts (PA, volume, item) and (2) a few abbreviations listed or implied in the Psychological Abstracts or in Webster's New International Dictionary.

Technical terms are explained, and some of them are defined exclusively, in the Introduction to Terms (pp. 624 ff.) or in earlier pages as referred to from this Index.

Parentheses mark additional spellings and meanings.

- Abercrombie, J., 268-269, 281-283, 361, 362, 381, 382, 383, 400, 537
- Abn.: Abnormal (and Social) (Psychology and Social)
- Abnormal: relatively far from ideal integration, 73-74
- Abnormal psychology, *see* Psychology, abnormal
- Aboulia, *see* Abulia
- Abouzit, F., 58
- Abrahamsen, D., 537
- Abreaction: in Freud's view, getting free of the emotional burden of repressed experiences through reliving them consciously, 23
- Abstraction: eliciting a generally applicable idea, 387-388; tests of, 388, 622
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- Abulia: lack of will, of action or decision, 461, 554, 611, 626
- Acad.: Academy (of)
- Acceptance as reaction to stress, 516
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- Admissions to mental institutions, 568
- Advergence: turning of one excitation into the path of a previous different excitation, 166-167, 185
- Affect: hedonic reaction or emotion, 91; in dissociation, 217-218, 224-226; suggestion and, 482: *see* Motivation, affective
- Affective psychosis, *see* Manic-depressive psychosis
- Affective unity, 217-218, 224-226
- Afunction: lack of whatever function is referred to, 626, 627
- Agitation, *see* Emotion, emergency
- Agnosia: abnormal inability to recognize common objects, 355, 627

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